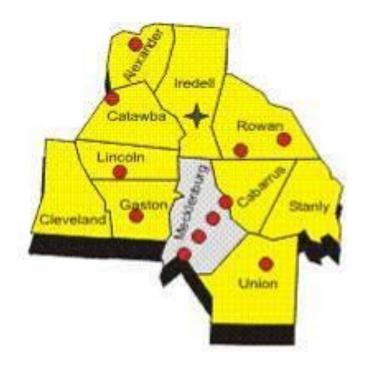
## 2012 ANNUAL MONITORING NETWORK PLAN FOR THE NORTH CAROLINA DIVISION OF AIR QUALITY

### **VOLUME 2**

# SITE DESCRIPTIONS BY DIVISION OF AIR QUALITY REGIONAL OFFICE AND METROPOLITAN STATISTICAL AREA

### C. THE MOORESVILLE MONITORING REGION



*July 2, 2012* 

North Carolina Division of Air Quality A Division of the North Carolina Department of Environment and Natural Resources Mail Service Center 1641 Raleigh, North Carolina 27699-1641

## **Table of Contents**

| List of Figures  | C2  |
|--|-----|
| List of Tables   | C4  |
| C. The Mooresville Monitoring Region   | C5  |
| (1) Hickory-Lenoir-Morganton MSA   |     |
| (2) The Southwestern Piedmont Area   | C14 |
| (3) Charlotte-Gastonia-Concord MSA   |     |
|  |     |
| (4) The Southern Corridor between Charlotte and Winston-Salem                                  |     |
| Appendix C.1 Annual Network Site Review Forms for 2011   | C29 |
| Appendix C-2. Scale of Representativeness  | C62 |
| List of Figures  |     |
| Figure C1. The Mooresville Monitoring Region   |     |
| Figure C2. Locations of Monitors in the Hickory-Lenoir-Morganton MSA                           |     |
| Figure C3. Waggin Trail Ozone Monitoring Site (37-003-0004)                                    |     |
| Figure C4. Looking North from the Waggin Trail Site  |     |
| Figure C5. Looking Northwest from the Waggin Trail Site  |     |
| Figure C6. Looking Northeast from the Waggin Trail Site  |     |
| Figure C7. Looking East from the Waggin Trail Site   |     |
| Figure C8. Looking Southeast from the Waggin Trail Site  |     |
| Figure C9. Looking West from the Waggin Trail Site   |     |
| Figure C10. Looking Southwest from the Waggin Trail Site                                       |     |
| Figure C11. Looking South from the Waggin Trail Site  Figure C12. Lenior Ozone Monitoring Site |     |
| Figure C13. Looking North from the Lenoir Site   |     |
| Figure C14. Looking Northeast from the Lenoir Site   |     |
| Figure C15. Looking Northwest from the Lenoir Site   |     |
| Figure C16. Looking West from the Lenoir Site  |     |
| Figure C17. Looking Southwest from the Lenoir Site   |     |
| Figure C18. Looking East from the Lenoir Site  |     |
| Figure C19. Looking Southeast from the Lenoir Site   |     |
| Figure C20. Looking South from the Lenoir Site   |     |
| Figure C21. Hickory Particle Monitoring Site   |     |
| Figure C22 Looking North from the Hickory Site   |     |

| Figure C23. Looking Northwest from the Hickory site                         | C11 |
|---|-----|
| Figure C24. Looking West from the Hickory Site                              | C11 |
| Figure C25. Looking Southwest from the Hickory Site                         | C11 |
| Figure C26. Looking Northeast from the Hickory Site                         | C11 |
| Figure C27. Looking East from the Hickory Site                              | C11 |
| Figure C28. Looking Southeast from the Hickory Site                         | C11 |
| Figure C29. Looking South from the Hickory Site                             | C11 |
| Figure C30. Location of the URG Carbon Monitor at the Hickory Site          | C13 |
| Figure C31. Location of the Crouse Monitor                                  | C14 |
| Figure C32. Crouse Ozone Monitoring Site                                    | C15 |
| Figure C33. Looking North from the Crouse Site                              | C16 |
| Figure C34. Looking Northwest from the Crouse Site                          | C16 |
| Figure C35. Looking West from the Crouse Site                               | C16 |
| Figure C36. Looking Northeast from the Crouse Site                          | C16 |
| Figure C37. Looking East from the Crouse Site                               | C16 |
| Figure C38. Looking Southeast from the Crouse Site                          | C16 |
| Figure C39. Looking Southwest from the Crouse Site                          | C17 |
| Figure C40. Looking South from the Crouse Site                              |     |
| Figure C41. Monitoring Sites in the Charlotte MSA                           | C17 |
| Figure C42. Grier Middle School Fine Particle Monitoring Site (37-071-0016) | C18 |
| Figure C43. Grier Middle School Site Looking North                          | C18 |
| Figure C44. Grier Middle School Site Looking Northwest                      | C18 |
| Figure C45. Grier Middle School Site Looking Northeast                      | C18 |
| Figure C46. Grier Middle School Site Looking East                           | C18 |
| Figure C47. Grier Middle School Site Looking West                           | C19 |
| Figure C48. Grier Middle School Site Looking Southwest                      | C19 |
| Figure C49. Grier Middle School Site Looking Southeast                      | C19 |
| Figure C50. Grier Middle School Site Looking South                          | C19 |
| Figure C51. Monroe Ozone Monitoring Site (37-179-0003)                      | C19 |
| Figure C52. Looking North from the Monroe Site                              | C20 |
| Figure C53. Looking East from the Monroe Site                               | C20 |
| Figure C54. Looking West from the Monroe Site                               | C21 |
| Figure C55. Looking South from the Monroe Site                              | C21 |
| Figure 56. Monitoring Site Locations in Rowan County                        | C22 |
| Figure C57. Enochville Ozone Monitoring Site (37-159-0022)                  | C22 |
| Figure C58. Looking North from the Enochville Site                          | C22 |
| Figure C59. Looking Northeast from the Enochville Site                      | C22 |
| Figure C60. Looking Northwest from the Enochville Site                      | C23 |
| Figure C61. Looking West from the Enochville Site                           | C23 |
| Figure C62. Looking Southwest from the Enochville Site                      | C23 |
| Figure C63. Looking East from the Enochville Site                           | C23 |
| Figure C64. Looking Southeast from the Enochville Site                      | C23 |

| Figure C65. Looking South from the Enochville Site  | C23 |
|---|-----|
| Figure C68. Original Building at the Rockwell Ozone and Ozone Precursor Site (37-159-0021)      | C24 |
| Figure C69. New Building at the Rockwell Ozone, Fine Particle, and Precursor Site (37-159-0021) | C24 |
| Figure C70. Looking North from the Rockwell Site  | C24 |
| Figure C71. Looking Northwest from the Rockwell Site  | C24 |
| Figure C72. Looking West from the Rockwell Site   | C25 |
| Figure C73. Looking Southwest from the Rockwell Site  | C25 |
| Figure C74. Looking Northeast from the Rockwell Site  | C25 |
| Figure C75. Looking East from the Rockwell Site   | C25 |
| Figure C76. Looking Southeast from the Rockwell Site  | C25 |
| Figure C77. Looking South from the Rockwell Site  | C25 |
|   |     |
| List of Tables  |     |
| Table C1. Site Table for Waggin Trail   | C6  |
| Table C2. Site Table for Lenoir   | C9  |
| Table C3. Site Table for Hickory  | C12 |
| Table C4. Site Table for Crouse   | C15 |
| Table C5. Site Table for Monroe Middle School   | C20 |
| Table C6. Site Table for Rockwell   | C25 |
| Table C7. Site Type Appropriate Siting Scales   | C62 |

C. The Mooresville Monitoring Region

The Mooresville Monitoring
Region, shown in Figure C1,
consists of four areas: (1) the
eastern portion of the HickoryLenoir-Morganton MSA (Alexander
and Catawba Counties), (2) the
Southwestern Piedmont (Cleveland
and Lincoln Counties), (3) the
Charlotte MSA (Cabarrus, Gaston,
Mecklenburg, and Union Counties),
and (4) the Southern Corridor
between Charlotte and WinstonSalem (Iredell, Rowan and Stanly
Counties).



Figure C1. The Mooresville Monitoring Region

The red dots show the approximate locations of most monitoring sites in this region

#### (1) Hickory-Lenoir-Morganton MSA

The Hickory-Lenoir-Morganton MSA consists of four counties: Alexander, Burke, Caldwell, and Catawba County. The major metropolitan areas are the Cities of Hickory, Lenoir, and Morganton. The NC-DAQ currently operates three monitoring sites in the Hickory-Lenoir-Morganton MSA. These sites are located at Taylorsville (Alexander County), Lenoir (Caldwell County), and the Hickory Water Tower (Catawba County). The locations of these monitors are shown in Figure C2.



A is the Lenoir ozone monitoring site; B is the Waggin Trail ozone monitoring site in Taylorsville; C is the Hickory particle monitoring site. Circles around the monitors show the scale of representation (Lenoir is regional - 50 Km plus; Waggin Trail is urban - 4 to 50 Km; Hickory is neighborhood – 0.5 to 4 Km).

Figure C2. Locations of Monitors in the Hickory-Lenoir-Morganton MSA

At the Waggin Trail site in Taylorsville the NC-DAQ operates a seasonal ozone monitor. The site is shown in Figure C3. Table C1 summarizes monitoring information for the site. Views looking north, northeast, east, southeast, south, southwest, west and northwest are shown in Figure C4 through Figure C11. The Waggin Trail site was established as the downwind site for the Hickory-Lenoir-Morganton MSA. This site is the design value monitor for the MSA. 40 CFR 58 Appendix D requires the Hickory-Lenoir-Morganton MSA to have two ozone monitoring sites.



Figure C3. Waggin Trail Ozone Monitoring Site (37-003-0004)

#### **Table C1. Site Table for Waggin Trail**

| Site Name:                      |         | in Trail            | ggiii iraii                           |           | AOSS                                   | Site Iden | tificati | ion Numbe                         | r:  | 37-00                      | 03-0004                                     |
|---------------------------------|---------|---------------------|---------------------------------------|-----------|--|-----------|----------|-----------------------------------|---|----------------------------|---|
| Location:                       |         |                     | il, Taylorsvil                        | le. North |  | The rate  | ······   |                                   |   | 2, 30                      |   |
| MSA:                            | 100     |                     | Lenoir-Morg                           |           |  |           | MS       | A #:                              |   | 3290                       |   |
| Latitude                        |         | 35.92899            |                                       | ngitude   | -81.18                                 | 39758     | Dat      |                                   |   | WGS                        |   |
| Elevation                       |         | 339 mete            | ers                                   |           | •                                      |           |          |                                   |   |                            |   |
| Parameter N                     | ame     | Method              |                                       |           | Metho<br>ID                            | d Refer   | ence     | Sample<br>Duration                |   | Samp                       | ling Schedule                               |
| Ozone                           |         | Instrume<br>Photome | ntal With Ult<br>try (047)            | ra Viole  | EQOA                                   | -0880-0   | 47       | 1-Hour                            | ır April  |                            | 1 to October 31                             |
| <b>Date Monito</b>              | r Estab | lished:             | Ozone                                 |           |  |           |          |                                   | I   | Augus                      | t 11, 2004                                  |
| Nearest Road: Waggin' Trail Tra |         |                     | Traff                                 | ic Count: | None                                   |           | Year     | of Co                             | ount:   | None                       |   |
| Parameter N                     | ame     | Distance            | ce to Road                            | D         | irection to                            | Road      | Moni     | itor Type                         | State   | ement                      | of Purpose                                  |
| Ozone                           |         |                     | 14 meters                             |           | West                                   |           | SLAN     | MS                                | Real-time AQI report and forecasting.  Compliance w/NAA |                            | sting.                                      |
| Parameter N                     | ame     | Monito              | oring Objecti                         | ive So    | cale                                   |           | Com      | ble for<br>parison<br>AAQS        | Prop  | Proposal to Move or Change |   |
| Ozone                           |         | General             | l Background                          | U:        | rban                                   |           |          | Yes                               | None  | e                          |   |
| Parameter N                     | ame     |                     | Meets Part<br>Appendix A<br>Requireme | A A       | leets Part :<br>ppendix C<br>equiremen |           | Appe     | s Part 58<br>endix D<br>airements |   |                            | Meets Part 58<br>Appendix E<br>Requirements |
| Ozone                           |         |                     | Yes                                   |           | Yes                                    |           |          | Yes                               |   |                            | Yes   |
| Parameter N                     | ame     | Pro                 | obe Height (1                         | m) D      | istance to                             | Support   | ;        | Distance t                        | o Tree  | es                         | Obstacles                                   |
| Ozone                           |         |                     | 4.7                                   |           | 1 m                                    | eter      |          | >20 m                             | eters   |                            | None  |

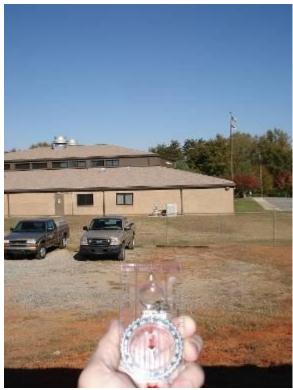


Figure C4. Looking North from the Waggin Trail Site



Figure C5. Looking Northwest from the Waggin Trail Site



Figure C6. Looking Northeast from the Waggin Trail Site





Figure C8. Looking Southeast from the Waggin Trail Site



Figure C9. Looking West from the Waggin Trail Site



Figure C10. Looking Southwest from the Waggin Trail Site At **Lenoir** the NC-DAQ operates a seasonal ozone monitor, the second required ozone-monitor for the MSA. In 2013, the NC-DAQ will add a special purpose sulfur dioxide monitor at Lenoir that will operate every third year to provide data for Prevention of Significant Deterioration (PSD) modeling for industrial expansion. The site is shown in Figure C12. Table C2 summarizes monitoring information for the site. Views looking north, northeast, east, southeast, south, southwest, west, and northwest from the site are shown in Figure C13 to Figure C20.



Figure C11. Looking South from the Waggin Trail Site



Figure C12. Lenior Ozone Monitoring Site

### **Table C2. Site Table for Lenoir**

| Site Name:       | Lenoi   | r       |                              |                  |            | AOS Si                           | te Ident | tificati       | on Numbe                        | r: 37-              | -027-0003                                   |  |
|------------------|---------|---------|------------------------------|------------------|------------|----------------------------------|----------|----------------|---------------------------------|---------------------|---|--|
| <b>Location:</b> |         |         | ircle, Lenoir                | , North          | Carolii    | _                                |          |                |                                 |                     |   |  |
| MSA:             |         | Hickor  | ry-Lenoir-M                  | organto          | n, NC      |                                  |          | MSA            | <b>\</b> #:                     | 329                 | 90  |  |
| Latitude         |         | 35.935  | 5833                         | Longitu          | ıde        | -81.53                           | 0278     | Dati           | ım:                             | W                   | GS84  |  |
| Elevation        |         | 366 m   | eters                        |                  |            |                                  |          |                |                                 |                     |   |  |
| Parameter N      | ame     | Metho   | od                           |                  |            | Method<br>ID                     | l Refere | ence           | Sample<br>Duration              |                     | apling Schedule                             |  |
| Ozone            |         | Photo   | mental With metry (047)      |                  | iolet      | EQOA-                            | 0880-04  | 17             | 1-Hour                          |                     | il 1 to October 31                          |  |
| Sulfur Dioxid    | le      |         | mental With scence (009)     |                  |            | EQSA-                            | 0276-00  | 19             | 1-Hour                          | Year-round          |   |  |
| Date Monito      | r Estab | lished: | Ozone<br>Sulfur Dio          | oxide            |            |                                  |          |                |                                 |                     | uary 1, 1981<br>uary 1, 2013                |  |
| Nearest Road     | d:      | Nuw     | ay Circle                    | T                | raffic     | Count:                           | 4900     | 900 Year of C  |                                 | of Coun             | <b>t:</b> 2008                              |  |
| Parameter N      | ame     | Dista   | ance to Road                 | d                | Dire       | ction to                         | Road     | Moni           | tor Type                        | Statemo             | ent of Purpose                              |  |
| Ozone            |         |         | 145 meters                   | S                |            | East                             |          | SLAN           | ИS                              | and fore<br>Complia | ance w/NAAQS.                               |  |
| Sulfur Dioxid    | le      |         | 145 meters                   | S                |            | East                             |          | Speci<br>Purpo |                                 |                     | on of Significant<br>ration (PSD)           |  |
| Parameter N      | ame     | Mon     | itoring Obj                  | ective           | Scal       | e                                |          |                | ble for<br>parison<br>AOS       | Proposa<br>Change   | al to Move or                               |  |
| Ozone            |         |         | eral Backgro                 |                  | Regi       | onal                             |          |                | Yes                             | None                |   |  |
| Sulfur Dioxid    | le      |         | eral Backgro                 |                  | Regi       |                                  |          |                | Yes                             | None                |   |  |
| Parameter N      | ame     |         | Meets P<br>Append<br>Require | Part 58<br>lix A | Mee<br>App | ts Part 5<br>endix C<br>uirement |          | Appe           | s Part 58<br>ndix D<br>irements |                     | Meets Part 58<br>Appendix E<br>Requirements |  |
| Ozone            |         |         | Ye                           | es               |            | Yes                              |          |                | Yes                             |                     | Yes   |  |
| Sulfur Dioxid    | le      |         | Ye                           | es               |            | Yes                              |          |                | Yes                             |                     | Yes   |  |
| Parameter N      | ame     | ]       | Probe Heigh                  | nt (m)           | Dist       | ance to S                        | upport   |                | Distance t                      | o Trees             | Obstacles                                   |  |
| Ozone            |         |         | > 2                          | meters           |            | > 1 m                            | eter     |                | >20 m                           | eters               | None  |  |
| Sulfur Dioxid    | le      |         | > 2                          | meters           |            | > 1 m                            | eter     |                | >20 m                           | eters               | None  |  |



Figure C13. Looking North from the Lenoir Site



Figure C14. Looking Northeast from the Lenoir Site



Figure C15. Looking Northwest from the Lenoir Site



Figure C16. Looking West from the Lenoir Site



Figure C17. Looking Southwest from the Lenoir Site



Figure C21. Hickory Particle Monitoring Site



Figure C18. Looking East from the Lenoir Site



Figure C19. Looking Southeast from the Lenoir Site



Figure C20. Looking South from the Lenoir Site

At the Hickory site the NC-DAQ operates a one-inthree day fine particle FRM, a one-in-six day fine particle collocated FRM, one-in-six day speciation fine particle SASS and URG monitors, a continuous fine particle monitor, and two one-in-six day high volume PM10 monitors. Figure C21 through Figure C29 show the site as well as views looking north, northeast, east, southeast, south, southwest, west, and northwest. Table C3 summarizes monitoring information for the site.



Figure C22. Looking North from the Hickory Site



Figure C23. Looking Northwest from the Hickory site



Figure C24. Looking West from the Hickory Site



Figure C25. Looking Southwest from the Hickory Site



Figure C26. Looking Northeast from the Hickory Site



Figure C27. Looking East from the Hickory Site



Figure C28. Looking Southeast from the Hickory Site



Figure C29. Looking South from the Hickory Site

Table C3. Site Table for Hickory

| Table C3. Si             |                     |          | KUI y                      | - T                        |           |                             |        |         |              |                    |         |
|--------------------------|---------------------|----------|----------------------------|----------------------------|-----------|-----------------------------|--------|---------|--------------|--------------------|---------|
| Site Name:               | Hickory             |          |                            |                            | AQS Sit   | te Iden                     | tifica | ation N | Number       | 37-035-0004        |         |
| <b>Location:</b>         | 1650 1 <sup>s</sup> |          | Hickory, North Ca          |                            |           | 1                           |        |         | T.           |                    |         |
| MSA:                     |                     |          | y-Lenoir-Morgant           |                            |           |                             |        | A #:    |              | 3290               |         |
| Latitude                 |                     | 35.728   |                            | de -                       | 81.3655   | 56                          | Dat    | tum:    |              | WGS84              |         |
| Elevation                |                     | 333 me   | eters                      |                            |           |                             |        |         |              |                    |         |
|                          |                     |          |                            |                            |           |                             |        |         | Sample       |                    |         |
| Parameter N              | ame                 | Metho    | d                          |                            | I         | Refere                      | ice I  | D       | Duration     | Sampling So        |         |
|                          |                     |          |                            |                            |           |                             |        |         |              | Every Third        | Day,    |
|                          |                     |          |                            |                            |           |                             |        |         |              | Year Round         |         |
| PM 2.5 Local             |                     | R & P    | Model 2025 PM2.            | odel 2025 PM2.5 Sequential |           |                             |        |         |              | Every Sixth        | Day,    |
| Conditions               |                     |          | IS – Gravimetric A         |                            | 118) F    | RFPS-0498-118 2             |        |         | 24-Hour      | Year Round         |         |
| PM2.5 Raw I              |                     |          | TEOM w/SCC w/              |                            |           |                             |        |         |              |                    |         |
| Acceptable P             | M2.5                |          | tion Factor (701)/(        |                            |           | Not a Reference             |        | ence    |              |                    |         |
| AQI & Specia             |                     |          | w/SCC w/Correct            |                            |           | Method                      |        |         | 1-Hour       | Year Round         |         |
| Acceptable P             |                     | Met Or   | ne SASS Teflon –           | Gravimet                   |           | Not a R                     |        | ence    |              | Every Sixth        | Day     |
| AQI & Specia             |                     | Analys   | is (810)                   |                            | N         | Method                      |        |         | 24-Hour      | Year Round         |         |
| EC/OC CSN_               | _                   |          |                            |                            |           |                             |        |         |              |                    |         |
| Unadjusted P             | M2.5                |          | 000N w/Pall Quar           | tz filter a                |           | Not a R                     |        | ence    |              | Every Sixth        | Day     |
| LC TOT                   |                     | Cyclon   |                            |                            |           | Method                      |        |         | 24-Hour      | Year Round         |         |
| PM10 Total 0             | )-10um              |          | -Wedding-Inlet - C         | Gravimetı                  |           |                             |        |         |              | Every Sixth        | Day     |
| STP                      |                     | Analys   | is (062)                   |                            | F         | RFPS-1                      | 087-   | 062     | 24-Hour      | Year Round         |         |
|                          |                     |          | PM 2.5 Local Cond          |                            |           | Monitor                     |        |         |              | January 1, 19      | 999     |
|                          |                     | P        | PM 2.5 Local Cond          | litions, C                 | ollocated | d Moni                      | tor    |         |              | August 16, 2008    |         |
| Data Manita              | _                   | P        | M2.5 Raw Data/ A           | Acceptabl                  | le PM2.5  | 2.5 AQI & Speciation (TEOM) |        |         | n (TEOM)     | January 1, 2006    |         |
| Date Monito Established: | Г                   | A        | Acceptable PM2.5           | AQI & S                    | peciation | ı (Supe                     | r SA   | SS)     |              | January 2, 20      | 002     |
| Establisheu:             |                     | E        | EC/OC CSN_Rev I            | ed PM2.5                   | 5 LC T    | OT (                        | URG 3  | 3000N)  | October 1, 2 | 009                |         |
|                          |                     | P        | M10 Total 0-10ur           | n STP, Pı                  | rimary M  | <b>l</b> onitor             |        |         |              | September 2        | 7, 1992 |
|                          |                     | P        | M10 Total 0-10ur           | n STP, C                   | ollocated |                             |        |         |              | January 1, 2009    |         |
| Nearest Road             | d:                  |          | 15 <sup>th</sup> Street SW |                            | Traffic   | fic Count: None Ye          |        |         |              | ar of Count:       | None    |
|                          |                     |          | Distance to                | Directi                    | on to     |                             |        |         |              |                    | •       |
| Parameter N              | ame                 |          | Road                       | Road                       |           | Mon                         | itor   | Type    | Statemen     | nt of Purpose      |         |
|                          |                     |          |                            |                            |           | SLA                         | MS     | -       | Required     | monitor. Com       | pliance |
| PM 2.5 Local             | Condition           | ons      | Not available              | Not av                     | ailable   | OA (                        | Colle  | cated   |              | S. AQI reportii    |         |
| PM2.5 Raw I              |                     |          |                            |                            |           |                             |        |         |              | monitor. Real-     |         |
| PM2.5 AQI 8              |                     |          | 16.8 meters                | Ea                         | ast       | SLA                         | MS     |         |              | orting & forecas   |         |
| Acceptable P             | _                   |          |                            |                            |           | Supp                        |        | ental   | Required     |                    |         |
| Speciation               |                     | -        | Not available              | Not av                     | ailable   | Spec                        |        |         | 1            |                    |         |
| EC/OC CSN_               | Rev Una             | adjusted |                            |                            |           | Supp                        |        |         | Required     | monitor.           |         |
| PM2.5 LC TO              |                     | 3        | Not available              | Not ava                    | ilable    | Spec                        |        |         | 1            |                    |         |
|                          |                     |          |                            | South                      |           | SLA                         |        |         | Complia      | nce w/NAAQS.       |         |
| PM10 Total 0             | )-10um S            | TP       | 18 meters                  | southw                     | est       |                             |        | cated   | 1            | <b>Q</b> -5-1      |         |
|                          |                     |          |                            | •                          |           | , `                         |        |         | ble for      |                    |         |
|                          |                     |          |                            |                            |           |                             |        |         | parison      | Proposal to M      | Iove or |
| Parameter N              | ame                 |          | Monitoring Ob              | iective                    | Scale     |                             |        |         | AQS          | Change             |         |
| PM 2.5 Local             |                     | ons      | Population Expo            |                            | Neight    | orhoo                       | 1      |         | Yes          | None               |         |
| PM2.5 Raw I              |                     |          | . <sub>1</sub>             | <del>-</del>               | 5.1.8.110 |                             |        |         |              | · · · <del>-</del> |         |
| PM2.5 AQI 8              |                     |          | Population Expo            | sure                       | Neight    | orhoo                       | i      |         | No           | None               |         |
| Acceptable P             |                     |          |                            |                            |           |                             |        |         |              |                    |         |
| Speciation               |                     |          | Population Expo            | sure                       | Neight    | orhoo                       | 1      |         | No           | None               |         |
| EC/OC CSN_               | Rev Una             | adjusted |                            |                            | 8         |                             |        |         |              |                    |         |
| PM2.5 LC TO              |                     | 3        | Population Expo            | sure                       | Neight    | orhoo                       | 1      |         | No           | None               |         |
| PM10 Total 0             |                     | TP       | General Backgro            |                            | Neight    |                             |        |         | Yes          | None               |         |
|                          |                     |          |                            |                            | -6        |                             |        |         | Yes None     |                    |         |

Table C3. Site Table for Hickory

| Parameter Name                                       | Meets Part 58<br>Appendix A<br>Requirements | Meets Part 58<br>Appendix C<br>Requirements | Meets Part 58<br>Appendix D<br>Requirements | Meets Part 58<br>Appendix E<br>Requirements |
|--|---|---|---|---|
| PM 2.5 Local Conditions                              | Yes   | Yes   | Yes   | Yes   |
| PM2.5 Raw Data/ Acceptable                           |   | No not required                             |   |   |
| PM2.5 AQI & Speciation                               | Yes   | to  | Yes   | Yes   |
| Acceptable PM2.5 AQI &                               |   | No not required                             |   |   |
| Speciation   | Yes   | to  | Yes   | Yes   |
| EC/OC CSN_Rev Unadjusted                             |   | No not required                             |   |   |
| PM2.5 LC TOT   | Yes   | to  | Yes   | Yes   |
| PM10 Total 0-10um STP                                | Yes   | Yes   | Yes   | No  |
| Parameter Name                                       | Probe Height (m)                            | Distance to Support                         | Distance to Tro                             | ees Obstacles                               |
|  | 2.46  | > 2 meters                                  | >20 meters                                  | None  |
| PM 2.5 Local Conditions                              | 2.31  | > 2 meters                                  | >20 meters                                  | None  |
| PM2.5 Raw Data/ Acceptable<br>PM2.5 AQI & Speciation | 4.57  | > 2 meters                                  | >20 meters                                  | None  |
| Acceptable PM2.5 AQI &                               |   |   |   |   |
| Speciation Speciation                                | 2.16  | > 2 meters                                  | >20 meters                                  | None  |
| -  | 2.16  | > 2 meters                                  | >20 meters                                  | None  |
| Speciation   | 2.16<br>2.36                                | > 2 meters                                  | >20 meters                                  | None<br>None                                |
| Speciation EC/OC CSN_Rev Unadjusted                  |   |   |   |   |



Figure C30. Location of the URG Carbon Monitor at the Hickory Site

The collocated PM10 monitor was added to the site on January 1, 2009. 40 CFR 58 Appendix A requires the PM10 collocated monitor be at the site in the network with the highest PM10 concentration. The summer of 2009 a URG 3000N Carbon Monitor was added to the Hickory site as part of the chemical speciation network upgrade. The Carbon Monitor operates on a one-in-six day schedule, replacing the carbon channel on the Met One SASS monitor also operating at the site. The Carbon Monitor is located next to the Met One SASS monitor as shown in Figure C30.

The Hickory-Lenoir-Morganton MSA was not impacted by the 2010 **lead monitoring** requirements because it does not have an NCore monitoring station and has no facilities within the MSA reporting over one half tons of lead emissions to the air in 2010. <sup>1</sup>

Any new **ozone monitoring** requirements should also not impact the Hickory-Lenoir-Morganton MSA. The MSA has the minimum number of monitors required by 40 CFR 58 Appendix D for population exposure monitoring in urban areas. This area should also not be impacted by rural ozone monitoring

C13

\_

<sup>&</sup>lt;sup>1</sup> Data obtained from the NC-DAQ emission inventory database, accessed February 2, 2012.

requirements. An ozone monitor at Linville Falls in Avery County currently represents the Linville Gorge Wilderness Class I Area (located in Burke County).

The Hickory-Lenoir-Morganton MSA was not impacted by the 2010 **nitrogen dioxide monitoring** requirements. It is too small to require area-wide monitors and does not have any roadways with average annual daily traffic above the threshold for near roadway monitoring.

The Hickory-Lenoir-Morganton MSA will also not be impacted by the 2010 **sulfur dioxide monitoring** requirements because the total sulfur dioxide emissions in this MSA multiplied by the total MSA population does not result in an index requiring a population weighted emission index (PWEI) monitor.

Changes to the **carbon dioxide monitoring** requirements will not result in additional monitoring in the Hickory MSA because the MSA population is too small.

#### (2) The Southwestern Piedmont Area

The Southwestern Piedmont Area consists of two counties: Cleveland and Lincoln. There are no MSAs and one micropolitan statistical area, Lincolnton, in this area. Lincolnton is the largest community. The NC-DAQ currently operates one seasonal ozone-monitoring site in this area at Crouse. The location of this monitoring site is shown in Figure C31.



Figure C31. Location of the Crouse Monitor

At the **Crouse** site in Lincoln County the NC-DAQ operates a seasonal ozone monitor. The site is shown in Figure C32. Monitoring information for the site is summarized in Table C3. Views looking north, northeast, east, southeast, south, southwest, west, and northwest are provided in Figure C33 through Figure C40. The site was originally established as the secondary downwind site for the Charlotte MSA. Thus, this site provides information on ozone being transported from the Charlotte MSA when the wind is from the second most prominent direction during third quarter when ozone concentrations are at their highest.



Figure C32. Crouse Ozone Monitoring Site

The December 2010 revisions to the **lead monitoring** network regulations did not result in additional monitoring in the Southwestern Piedmont Area. This area should also not be impacted by any new **ozone monitoring** requirements. The area does not have any MSAs that must meet the minimum number of monitors required by 40 CFR 58 Appendix D for population exposure monitoring in urban areas. This area should also not be impacted by rural ozone monitoring requirements. It does not have any Class I Areas and already has a monitor that is located in a Micropolitan Statistical Area.

The Southwestern Piedmont Area was not impacted by the 2010 **nitrogen dioxide** monitoring requirements. It is too small to require area-wide

**Table C4. Site Table for Crouse** 

| Site Name:                          |   | Crou                | ise                                    |                       |                               |                                       |                                    |              |   |
|-------------------------------------|---|---------------------|--|-----------------------|-------------------------------|---------------------------------------|------------------------------------|--------------|---|
| AQS Site Identifica                 | tion Number   | 37-10               | 09-0004                                |                       |                               |                                       |                                    |              |   |
| <b>Location:</b>                    |   | 1487                | Riverview Road                         |                       |                               |                                       |                                    |              |   |
|                                     |   | Lince               | olnton, North Card                     | olina                 |                               |                                       |                                    |              |   |
| MSA:                                | Not in an MSA   |                     |  |                       | MS                            | A #:                                  |                                    |              |   |
| Latitude                            | 35.438556   |                     |  |                       |                               |                                       |                                    |              |   |
| Longitude                           | -81.276750  |                     |  |                       | Dat                           | um:                                   |                                    | W(           | GS84  |
| Elevation                           | 270 meters  |                     |  |                       |                               |                                       |                                    |              |   |
| Parameter Name                      | Method  |                     | Method Referen                         | ice ID                | S                             | Sample                                | Duration                           | S            | Sampling Schedule                                     |
|                                     | Instrumental With Ult   |                     |  |                       |                               | Α                                     | April 1 to October                 |              |   |
| Ozone                               | Violet Photometry (04   | (047) EQOA-0880-047 |  | 7                     | 1                             | l-Hour                                |                                    | 3            | 1   |
| <b>Date Monitor Estab</b>           | olished: Ozone  |                     |  |                       |                               |                                       |                                    | J            | uly 1, 1993   |
| Nearest Road:                       | Riverview Road  |                     |  |                       |                               |                                       |                                    |              |   |
| Traffic Count:                      | 2200  |                     |  | Year                  | Year of Count:                |                                       |                                    | 20           | 09  |
| Parameter Name                      | Distance to Road  | Dir                 | rection to Road                        | Mon                   | itor '                        | Type                                  | Statemer                           | nt of        | f Purpose   |
|                                     |   |                     |  |                       |                               |                                       | Complian                           |              | w/NAAQS. Real-  |
|                                     |   |                     |  |                       |                               |                                       |                                    |              |   |
|                                     |   |                     |  |                       |                               |                                       | time AQI                           | rep          |   |
| Ozone                               | 52 meters   |                     | Southwest                              | SLA                   |                               |                                       |                                    | rep          |   |
| Ozone                               |   |                     | Southwest                              | Suita                 | ble f                         |                                       | time AQI                           | rep          |   |
|                                     | Monitoring  |                     |  | Suita<br>Com          | ible f                        | son                                   | time AQI<br>forecastin             | l rep<br>ng. | porting &   |
| Ozone Parameter Name                | Monitoring<br>Objective   | Sca                 | ale                                    | Suita                 | ble f<br>paris                | son<br>S                              | time AQI forecastin                | l rep<br>ng. |   |
|                                     | Monitoring  | Sca<br>Urt          | ale                                    | Suita<br>Com          | ible f                        | son<br>S                              | time AQI<br>forecastin             | l rep<br>ng. | porting &   |
| Parameter Name                      | Monitoring<br>Objective   | Url                 | ale                                    | Suita<br>Com          | ble f<br>paris                | son<br>S                              | time AQI forecastin                | l rep<br>ng. | porting &   |
| Parameter Name Ozone                | Monitoring Objective General Background Meets Part 58 Appendix A              | Urt Me              | ale<br>ban<br>cets Part 58<br>pendix C | Suita<br>Com<br>to NA | nble f<br>paris<br>AAQ<br>Yes | son<br>OS<br>art 58 A                 | time AQI forecastin                | repag.       | Move or Change  Meets Part 58 Appendix E              |
| Parameter Name                      | Monitoring Objective General Background Meets Part 58                         | Urt Me              | ale<br>ban<br>cets Part 58             | Suita<br>Com<br>to NA | nble f<br>paris<br>AAQ<br>Yes | son<br>OS                             | time AQI forecastin  Proposal None | repag.       | Move or Change  Meets Part 58                         |
| Parameter Name Ozone                | Monitoring Objective General Background Meets Part 58 Appendix A              | Urt Me              | ale<br>ban<br>cets Part 58<br>pendix C | Suita<br>Com<br>to NA | nble f<br>paris<br>AAQ<br>Yes | son<br>OS<br>art 58 A                 | Proposal None                      | repag.       | Move or Change  Meets Part 58 Appendix E              |
| Parameter Name Ozone Parameter Name | Monitoring Objective General Background Meets Part 58 Appendix A Requirements | Urt Me Ap Re        | ban eets Part 58 pendix C quirements   | Suita<br>Com<br>to NA | nble f<br>paris<br>AAQ<br>Yes | son<br>OS<br>art 58 A<br>ments<br>Yes | Proposal None                      | repag.       | Move or Change  Meets Part 58 Appendix E Requirements |



Figure C33. Looking North from the Crouse Site



Figure C34. Looking Northwest from the Crouse Site



Figure C35. Looking West from the Crouse Site



Figure C36. Looking Northeast from the Crouse Site



Figure C37. Looking East from the Crouse Site



Figure C38. Looking Southeast from the Crouse Site

monitors and does not have any roadways with average annual daily traffic above the threshold for near roadway monitoring. The 2010 **sulfur dioxide** monitoring requirements will also not result in additional monitoring in this area because there are no large sources of sulfur

dioxide in the two counties. This area will also not be impacted by the changes to the **carbon dioxide monitoring** requirements because the population is too small.



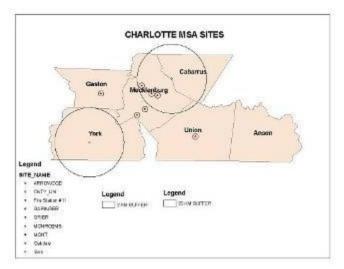
Figure C39. Looking Southwest from the Crouse Site



Figure C40. Looking South from the Crouse Site

#### (3) Charlotte-Gastonia-Concord MSA

The Charlotte-Gastonia-Concord MSA consists of six counties: Anson, Cabarras, Gaston, Mecklenburg, Union, and York (South Carolina). The major metropolitan areas are Charlotte, Gastonia, Concord, and Rock Hill (South Carolina). This MSA is one of the fastest growing areas in North Carolina. The NC-DAQ currently operates two monitoring sites in the Charlotte-Gastonia-Concord MSA, Mecklenburg County Air Quality (MCAQ) operates six, and the South Carolina Department of Health and Environmental Conservation (DHEC) operates one. These sites are located at Grier Middle School (Gaston County), Arrowood, Garinger High School, County Line, and Oakdale, in Charlotte (Mecklenburg County), Monroe (Union County), and York (York County). The locations of these monitors are shown in Figure C41. The MCAQ sites and monitors are discussed in Appendix B. Only the two NC-DAQ sites (Grier in Gaston County and Monroe in Union County) are further discussed in this subsection.



CNTY\_LIN is the County Line ozone site; Oakdale is the Oakdale particle site; York is the York ozone site; GARINGER is the Garinger multi-pollutant site; ARROWOOD is the Arrowood ozone site; MONROEMS is the Monroe ozone site; Fire Station #11 is the Fire Station #11 particle site; GRIER is the Grier School fine particle site; MONT is the Montclaire particle site. The circles approximate the scale of representation (urban – 4 to 50 Km for York and County Line and neighborhood – 0.5 to 4 Km for the other sites).

Figure C41. Monitoring Sites in the Charlotte MSA

At the **Grier Middle School** site the NC-DAQ operates a one-in-three day fine particle FRM monitor and a continuous fine particle monitor. Figure C42 through Figure C50 provide pictures of the site and views looking north, northeast, east, south, southwest, and west. This fine-particle monitoring site is the fourth fine particle site for the MSA. 40 CFR 58 Appendix D requires the Charlotte-Gastonia-Concord MSA to have only two fine- particle monitoring sites. The site is collocated with wind speed and wind direction sensors.



Figure C42. Grier Middle School Fine Particle Monitoring Site (37-071-0016)



Figure C43. Grier Middle School Site Looking North



Figure C44. Grier Middle School Site Looking Northwest



Figure C45. Grier Middle School Site Looking Northeast



Figure C46. Grier Middle School Site Looking East



Figure C47. Grier Middle School Site Looking West



Figure C48. Grier Middle School Site Looking Southwest

Table C5At the Monroe Middle School site the NC-DAQ operates a seasonal ozone monitor. Figure C51 shows the site. Table C5 summarizes monitoring information for the site. Figure C52 through Figure C55 provide views looking north, east, south, and west. This ozone-monitoring site is one of five for the MSA. 40 CFR 58 Appendix D requires the Charlotte-Gastonia-Concord MSA to have two ozone monitoring sites. The site is located at the goal end of a soccer field so soccer balls sometimes damage the probe. The NC-DAQ has investigated moving the site to another part of Monroe; however, this site meets the siting criteria in 40 CFR 58 Appendix E better than any nearby alternative location. The NC-DAQ has also added a fence on the roof of the building between the probe and soccer field to protect the probe.



Figure C49. Grier Middle School Site Looking Southeast



Figure C50. Grier Middle School Site Looking South



Figure C51. Monroe Ozone Monitoring Site (37-179-0003)

Table C5. Site Table for Monroe Middle School

| Table C5. Site Table for I        | violitue iviluule | 2 3011001      |           |        |         |              |          |                       |                      |  |
|-----------------------------------|-------------------|----------------|-----------|--------|---------|--------------|----------|-----------------------|----------------------|--|
| Site Name:                        |                   | Monroe Midd    | le School | l      |         |              |          |                       |                      |  |
| <b>AQS Site Identification Nu</b> | mber              | 37-179-0003    |           |        |         |              |          |                       |                      |  |
| Location:                         |                   | 701 Charles S  | treet     |        |         |              |          |                       |                      |  |
|                                   |                   | Monroe, Nort   | h Carolin | ıa     |         |              |          |                       |                      |  |
| MSA: Char                         | ·lotte-Gastonia-F | Rock Hill, NC- | -SC       |        | MSA     | #:           |          |                       |                      |  |
| Latitude 34.9                     | 73889             | ·              |           |        | Datu    | m:           |          | WC                    | iS84                 |  |
| Longitude -80.5                   | 540833            |                |           |        |         |              |          |                       |                      |  |
| •                                 | meters            |                |           | U      | l.      |              | •        |                       |                      |  |
|                                   |                   |                | Method    | l Refe | erence  | e Sample Sa  |          | Sam                   | pling Schedule       |  |
| Parameter Name Met                | hod               |                | ID        |        |         | Dura         | tion     |                       |                      |  |
| Instr                             | umental With U    | ltra Violet    |           |        |         |              |          |                       |                      |  |
| Ozone Phot                        | ometry (047)      | EQOA-0880      |           |        | 047     | 1-Hour       |          | April 1 to October 31 |                      |  |
| <b>Date Monitor Established:</b>  | Ozone             |                |           |        |         |              |          | April 7, 1999         |                      |  |
| Nearest Road: Charle              | es Street         |                |           |        |         |              |          |                       |                      |  |
| <b>Traffic Count:</b> 2500        |                   |                |           | Year   | r of Co | ount:        |          | 200                   | )9                   |  |
| Parameter Name Distan             | nce to Road       | Direction to   | Road      | Mor    | nitor T | Type Stateme |          | nent                  | of Purpose           |  |
|                                   |                   |                |           |        |         | -            | Real-t   | ime .                 | AQI reporting &      |  |
|                                   |                   |                |           |        |         |              |          |                       | g. Compliance        |  |
| Ozone 7                           | 1.3 meters        | West           | t         | Spec   | cial Pu | rpose        | w/NA     |                       |                      |  |
|                                   |                   |                |           | Suit   | able fo | r            |          |                       |                      |  |
| Moni                              | toring            |                |           | Con    | paris   | on to        |          |                       |                      |  |
| Parameter Name Object             | etive             | Scale          |           | NAA    | AQS     |              | Propo    | sal t                 | o Move or Change     |  |
| Ozone Popul                       | ation Exposure    | Neighborho     | od        | Yes    |         |              | None     |                       |                      |  |
| Meets                             | Part 58           | Meets Part     | 58        |        |         |              |          |                       | <b>Meets Part 58</b> |  |
| Appe                              | ndix A            | Appendix C     |           | Mee    | ts Par  | t 58 App     | oendix l | D                     | Appendix E           |  |
| Parameter Name Requi              | irements          | Requiremen     |           | Req    | uirem   | ents         |          |                       | Requirements         |  |
| Ozone                             | Yes               | Yes            |           |        |         | Yes          |          |                       | Yes                  |  |
| D N D l.                          | Height (m)        | Distance to    | Support   |        | 1       | Distance     | to Tre   | PS                    | Obstacles            |  |
| Parameter Name   Probe            | : Height (III)    | Distance to    | Support   | •      | 1 2     | Distance     | to IIC   | CD                    | Obstacies            |  |



Figure C52. Looking North from the Monroe Site



Figure C53. Looking East from the Monroe Site







Figure C55. Looking South from the Monroe Site

Changes to the **lead monitoring** requirements in 2010 will result in additional monitoring in the Charlotte-Gastonia-Concord MSA. This MSA has an NCore monitoring site and may begin monitoring at that site for lead in the ambient air December 27, 2011, if funding is provided to pay for the analysis of the samples. Currently, the samples are being archived for possible future analysis.

Any new **ozone monitoring** requirements should not result in additional monitoring in the Charlotte-Gastonia-Concord MSA. The MSA currently exceeds the minimum number of monitors required by 40 CFR 58 Appendix D for population exposure monitoring in urban areas. This area should also not be impacted by rural ozone monitoring requirements. It does not have any Class I Areas.

The 2010 **nitrogen dioxide** monitoring requirements will require additional monitoring in the Charlotte-Gastonia-Concord MSA. The MSA will be required to have an area-wide monitor and a near-roadway monitor. The 2010 **sulfur dioxide** monitoring requirements will also require additional monitoring in the Charlotte-Gastonia-Concord. It is required to have two population-weighted emission index (PWEI) monitors within the MSA because there are large sources of sulfur dioxide as well as large numbers of people in the MSA. These PWEI monitors are located at the Garinger High School monitoring site in Charlotte and at the York monitoring site in York, South Carolina. The changes in the **carbon dioxide monitoring** requirements will also result in more monitoring in this MSA. Because the population in the MSA is over one million people, a near road carbon monoxide monitor will be required in 2017.

### (4) The Southern Corridor between Charlotte and Winston-Salem

The southern corridor between Charlotte and Winston-Salem consists of three counties: Iredell, Rowan and Stanly. There are no MSAs in these counties. The Albemarle, Salisbury, and Statesville-Mooresville Micropolitan Statistical Areas are located here. The NC-DAQ currently operates two monitoring sites in this area, both located in Rowan County. The locations of these monitoring sites are shown in Figure 56.

At the **Enochville** site the NC-DAQ operates a seasonal ozone monitor. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west, and northwest are provided in Figure C57 through Figure C62.



Figure 56. Monitoring Site Locations in Rowan County

A is the Rockwell site; B is the Enochville site. The circles represent the urban and neighborhood scales (30 Km for ozone and 4 Km for the fine particles).



Figure C57. Enochville Ozone Monitoring Site (37-159-0022)



Figure C58. Looking North from the Enochville Site



Figure C59. Looking Northeast from the Enochville Site



Figure C60. Looking Northwest from the Enochville Site



Figure C61. Looking West from the Enochville Site



Figure C62. Looking Southwest from the Enochville Site



Figure C63. Looking East from the Enochville Site



Figure C64. Looking Southeast from the Enochville Site



Figure C65. Looking South from the Enochville Site

At the **Rockwell** site the NC-DAQ operates a year-round ozone monitor, one-in-three day fine particle FRM monitor, a one-in-six day collocated fine particle monitor, a continuous fine particle monitor, and a one-in-six day speciation fine particle monitor. In addition high sensitivity reactive oxides of nitrogen and carbon monoxide monitors operate year round at this site. A continuous fine particle nitrate monitor and aethalometer also operate year-round at this site. During the summer of 2009 a URG 3000N Carbon Monitor was added to the Rockwell site as part of the chemical speciation network

upgrade. The Carbon Monitor operates on a one-in-six day schedule and replaces the carbon channel on the Met One SASS monitor operating at the site. The Carbon Monitor is located next to the Met One SASS monitor. Pictures of the site as well as views looking north, northeast, east, southeast, south, southwest, west, and northwest are provided in Figure C66 through Figure C75. The NC-DAQ plans to shut down the carbon monoxide monitor in third or fourth quarter of 2012 after receiving official approval from the Environmental Protection Agency. Official approval is unnecessary as the monitor is non-regulatory and does not use an approved Federal Reference or Equivalent Method; however, it is incorrectly listed in the Air Quality System (AQS) as a State and Local Air Monitoring Station (SLAMS). The NC-DAQ has decided that the information provided by the carbon monoxide monitor is no longer needed and that the resources used to operate the monitor can be better used to operate a sulfate monitor at the site. The sulfate monitor will be added in 2013.



Figure C66. Original Building at the Rockwell Ozone and Ozone Precursor Site (37-159-0021)



Figure C68. Looking North from the Rockwell Site



Figure C67. New Building at the Rockwell Ozone, Fine Particle, and Precursor Site (37-159-0021)



Figure C69. Looking Northwest from the Rockwell Site



Figure C70. Looking West from the Rockwell Site



Figure C71. Looking Southwest from the Rockwell Site



Figure C72. Looking Northeast from the Rockwell Site



Figure C73. Looking East from the Rockwell Site



Figure C74. Looking Southeast from the Rockwell Site



Figure C75. Looking South from the Rockwell Site

**Table C6. Site Table for Rockwell** 

| Site Name:            |                | Rockwell                                  |                 |                 |           |          |                   |  |
|-----------------------|----------------|---|-----------------|-----------------|-----------|----------|-------------------|--|
| AQS Site Identificati | ion Number     | 37-159-002                                | 37-159-0021     |                 |           |          |                   |  |
| Location:             | 316 West \$    | 316 West Street, Rockwell, North Carolina |                 |                 |           |          |                   |  |
| MSA:                  | Not in an MSA  |   |                 |                 | MSA #:    |          | 00000             |  |
| Latitude              | 35.551868      | Longitude                                 | ongitude -80.39 |                 | Datum:    |          | WGS84             |  |
| Elevation             | 240 meters     |   |                 |                 |           |          |                   |  |
|                       |                | 2 to meters                               |                 |                 | Method S  |          |                   |  |
| Parameter Name        | Method         |   |                 | Refere          | nce ID    | Duration | Sampling Schedule |  |
|                       | Instrumental N | ondispersive Infa                         | rared           | Not a F         | Reference |          |                   |  |
| Carbon Monoxide       | (TECO 48S)     | -   |                 | Method          | l         | 1-Hour   | Year Round        |  |
| Reactive Oxides of    | Low Level NO   | x Instrumental (                          | ГЕСО            | Not a Reference |           |          |                   |  |
| Nitrogen              | 42S)           |   |                 | Method          |           | 1-Hour   | Year Round        |  |

**Table C6. Site Table for Rockwell** 

| Table C6. Site Table              |          |  | 7: -1-4           | EOO 4 0000         |             |                                |
|-----------------------------------|----------|--|-------------------|--------------------|-------------|--------------------------------|
| 0                                 |          | mental With Ultra                            | Violet            | EQOA-0880-         | 1 По        | Van Dam d                      |
| Ozone                             | Photo    | metry (047)                                  |                   | 047                | 1-Hour      | Year Round                     |
|                                   |          |  |                   |                    |             | Every Third Day,               |
| DM 2 7 1 1                        | D 0 D    | NA 110005 DMO                                | 5 G .: 1          |                    |             | Year Round                     |
| PM 2.5 Local                      |          | Model 2025 PM2.                              |                   | DEDC 0400 110      | 24 П        | Every Sixth Day,<br>Year Round |
| Conditions PM2.5 Raw Data/        |          | NS – Gravimetric <i>A</i><br>5 TEOM w/SCC w/ |                   | RFPS-0498-118      | 24-Hour     | Year Round                     |
|                                   |          |  |                   | Not a Reference    |             |                                |
| Acceptable PM2.5 AQI & Speciation |          | ction Factor (701)/(<br>M w/SCC w/Correct    |                   | Method             | 1-Hour      | Year Round                     |
| Acceptable PM2.5                  |          | One SASS Teflon –                            |                   | Not a Reference    | 1-110u1     | Every Sixth Day                |
| AQI & Speciation                  |          | rsis (810)                                   | Gravilleure       | Method             | 24-Hour     | Year Round                     |
| EC/OC CSN_Rev                     | Anary    | 313 (010)                                    |                   | Wicthod            | T car Round |                                |
| Unadjusted PM2.5                  | LIRG     | 3000N w/Pall Quar                            | tz filter and     | Not a Reference    |             | Every Sixth Day                |
| LC TOT                            |          | ne Inlet                                     | tz inter and      | Method             | 24-Hour     | Year Round                     |
| Total Nitrate PM2.5               |          | MODEL 8400N FL                               | ASH               | Not a Reference    | 2111001     | Tour Round                     |
| LC                                |          | ORIZATION (861)                              | 2 1011            | Method             | 1-Hour      | Year Round                     |
| Black Carbon                      |          |  |                   |                    |             |                                |
| PM2.5 LC/UV                       | Mage     | e Scientific AE21E                           | R                 | Not a Reference    |             |                                |
| Carbon PM2.5 LC                   |          | lometer (866)                                |                   | Method             | 1-Hour      | Year Round                     |
| Date Monitor Establi              |          | Carbon Monoxide                              | <u> </u>          |                    | <u> </u>    | April 1, 1993                  |
| Date Monitor Establi              |          | Reactive Oxides of                           |                   |                    |             | April 1, 1993                  |
| Date Monitor Establi              |          | Ozone  |                   |                    |             | April 1, 1993                  |
| 2 400 1/1011101 250401            | 511041   |  |                   |                    |             | January 1, 2005                |
| Date Monitor Establi              | ished:   | PM 2.5 Local Cor                             | February 14, 2011 |                    |             |                                |
| Date Monitor Establi              |          |  |                   | 12.5 AQI & Speciat | ion         | January 1, 2006                |
| Date Monitor Establi              |          | Acceptable PM2.5                             |                   |                    |             | January 7, 2005                |
| Date Monitor Establi              |          | EC/OC CSN_Rev                                |                   |                    |             | October 1, 2009                |
| Date Monitor Establi              |          | Total Nitrate PM2                            |                   |                    |             | January 2, 2007                |
| Date Monitor Establi              |          | Black Carbon PM                              |                   | bon PM2.5 LC       |             | January 1, 2009                |
| Nearest Road:                     |          | Gold Hill Road                               |                   |                    |             | ,                              |
| Traffic Count:                    |          | Not available                                | <u></u>           | Year of Count      | :           |                                |
|                                   |          | Distance to                                  | Direction to      |                    |             |                                |
| Parameter Name                    |          | Road   | Road              | Monitor Type       | Statemen    | t of Purpose                   |
|                                   |          |  |                   |                    |             | d fine particle precursor      |
| Carbon Monoxide                   |          | 17 meters                                    | North             | Nonregulatory      | monitorin   |                                |
|                                   |          |  |                   |                    |             | d fine particle precursor      |
|                                   |          |  |                   |                    |             | g; emission inventory          |
| Reactive Oxides of Ni             | trogen   | 17 meters                                    | North             | Nonregulatory      | validation  |                                |
|                                   |          |  |                   |                    |             | ecursor Monitoring.            |
|                                   |          |  |                   | Special            |             | cew/NAAQS.                     |
| Ozone                             |          | 17 meters                                    | North             | Purpose            | Modeling    |                                |
|                                   |          |  |                   | SLAMS              |             |                                |
| PM 2.5 Local Condition            | ons      | 26 meters                                    | North             | QA Collocated      | Complian    | ce w/NAAQS.                    |
| PM2.5 Raw Data/ Acc               |          |  |                   |                    |             | cle precursor                  |
| PM2.5 AQI & Speciat               |          | 26 meters                                    | North             | Nonregulatory      | monitorin   |                                |
| Acceptable PM2.5 AQ               | )I &     |  |                   | Supplemental       | Fine parti  | cle precursor                  |
| Speciation                        |          | 26 meters                                    | North             | Speciation         | monitorin   |                                |
| EC/OC CSN_Rev Una                 | adjusted |  |                   | Supplemental       | Fine parti  | cle precursor                  |
| PM2.5 LC TOT                      |          | 26 meters                                    | North             | Speciation         | monitorin   | g.                             |
|                                   |          |  |                   | Special            | Fine parti  | cle precursor                  |
| Total Nitrate PM2.5 L             |          | 26 meters                                    | North             | Purpose            | monitorin   |                                |
| Black Carbon PM2.5 I              | LC/UV    |  |                   | Special            |             | cle precursor                  |
| Carbon PM2.5 LC                   |          | 26 meters                                    | North             | Purpose            | monitorin   |                                |

**Table C6. Site Table for Rockwell** 

| Parameter Name   | Monitoring<br>Objective | Scale             | Suital<br>to NA | ole to Compare<br>AOS | Proposal to<br>Move or Cha | ange     |
|--|-------------------------|-------------------|-----------------|-----------------------|----------------------------|----------|
|  | Maximum Ozone           |                   |                 |                       | Shut down                  |          |
| Carbon Monoxide  | Concentration           | Urban             |                 | No                    | 11/1/2012                  |          |
|  | Maximum Ozone           |                   |                 |                       |                            |          |
| Reactive Oxides of Nitrogen                                  | Concentration           | Urban             |                 | No                    | Upgrade mon                | itor     |
| Ozone  | Highest Concentration   | Urban             |                 | Yes                   | None                       |          |
| PM 2.5 Local Conditions                                      | Population Exposure     | Neighborhood      |                 | Yes                   | None                       |          |
| PM2.5 Raw Data/ Acceptable                                   | 1                       |                   |                 |                       |                            |          |
| PM2.5 AQI & Speciation                                       | Population Exposure     | Neighborhood      |                 | No                    | None                       |          |
| Acceptable PM2.5 AQI &                                       |                         | 8 1 1 1 1 1 1     |                 | · ·                   |                            |          |
| Speciation   | Population Exposure     | Neighborhood      |                 | No                    | None                       |          |
| EC/OC CSN_Rev Unadjusted                                     | 1                       |                   |                 |                       |                            |          |
| PM2.5 LC TOT   | Population Exposure     | Neighborhood      |                 | No                    | None                       |          |
| Total Nitrate PM2.5 LC                                       | Population Exposure     | Neighborhood      |                 | No                    | None                       |          |
| Black Carbon PM2.5 LC/UV                                     | F                       | 6                 |                 | · -                   |                            |          |
| Carbon PM2.5 LC  | Population Exposure     | Neighborhood      |                 | No                    | None                       |          |
|  | Meets Part 58           | Meets Part 58     | M               | leets Part 58         | Meets Part 5               | 8        |
|  | Appendix A              | Appendix C        | A               | ppendix D             | Appendix E                 |          |
| Parameter Name   | Requirements            | Requirements      |                 | equirements           | Requiremen                 | ts       |
| Carbon Monoxide  | Yes                     | No not required   |                 | No requirements       | Yes                        |          |
| Reactive Oxides of Nitrogen                                  | Yes                     | No not required   |                 | No requirements       | Yes                        |          |
| Ozone  | Yes                     | Yes               |                 | No requirements       | Yes                        |          |
| PM 2.5 Local Conditions                                      | Yes                     | Yes               |                 | No requirements       | Yes                        |          |
| PM2.5 Raw Data/ Acceptable                                   |                         |                   |                 |                       |                            |          |
| PM2.5 AQI & Speciation                                       | Yes                     | No not required   | to N            | No requirements       | Yes                        |          |
| Acceptable PM2.5 AQI &                                       |                         | 1                 |                 | 1                     |                            |          |
| Speciation   | Yes                     | No not required   | to N            | No requirements       | No                         |          |
| EC/OC CSN_Rev Unadjusted                                     |                         | •                 |                 | •                     |                            |          |
| PM2.5 LC TOT   | Yes                     | No not required   | to N            | No requirements       | Yes                        |          |
| Total Nitrate PM2.5 LC                                       | No                      | No not required   |                 | No requirements       | Yes                        |          |
| Black Carbon PM2.5 LC/UV                                     |                         | •                 |                 | •                     |                            |          |
| Carbon PM2.5 LC  | No                      | No not required   | to N            | No requirements       | Yes                        |          |
| Parameter Name   | Probe Height (m)        | Distance to Suppo |                 | Distance to Tree      | es Obstac                  | cles     |
| Carbon Monoxide  | 3.5                     | 1.1 meters        |                 | 14.3 meters           | None                       |          |
| Reactive Oxides of Nitrogen                                  | 5.0                     | 1.1 meters        |                 | 14.3 meters           | None                       |          |
| Ozone Ozone  | 3.6                     | 1.1 meters        |                 | 14.3 meters           | None                       |          |
|  | 2.4                     | > 2 meters        |                 | >20 meters            | None                       |          |
| PM 2.5 Local Conditions                                      | 2.4                     | > 2 meters        |                 | >20 meters            | None                       |          |
| PM2.5 Raw Data/ Acceptable                                   | 2.1                     | > 2 meters        |                 | > 20 meters           | 1,010                      | <u>-</u> |
| PM2.5 AQI & Speciation                                       | 4.5                     | > 2 meters        |                 | >20 meters            | None                       | e        |
| Acceptable PM2.5 AQI &                                       |                         | . 2 meters        |                 | , 23 meters           | 1,011                      |          |
| Speciation Speciation  | 1.9                     | < 2 meters        |                 | >20 meters            | None                       | e        |
| EC/OC CSN_Rev Unadjusted                                     | 1.7                     | \ 2 meters        |                 | > 20 meters           | 11011                      |          |
|  | 2.2                     | > 2 matara        |                 | >20 meters            | None                       | e        |
| PM2.5 LC TOT   | 2.3                     | > Z meters        |                 |                       |                            | -        |
| PM2.5 LC TOT Total Nitrate PM2.5 LC                          | 2.3<br>Unavailable      | > 2 meters        |                 |                       |                            | e        |
| PM2.5 LC TOT Total Nitrate PM2.5 LC Black Carbon PM2.5 LC/UV | Unavailable             | > 2 meters        |                 | >20 meters            | None                       | e        |

The expansion of the **lead monitoring** network to support the lower lead NAAQS did not result in additional monitoring in the Southern Corridor between Charlotte and Winston-Salem. Any new **ozone** 

**monitoring** requirements should not result in more monitoring in this area. This area does not have any MSAs requiring a minimum number of monitors by 40 CFR 58 Appendix D for population exposure monitoring in urban areas, does not have any Class I Areas and already has a rural ozone monitor at Rockwell.

The 2010 **nitrogen dioxide** monitoring requirements did not result in additional monitoring in the Southern Corridor. The area is too small to require area-wide monitors and does not have any roadways with average annual daily traffic above the threshold for near roadway monitoring. The 2010 **sulfur dioxide** monitoring requirements did not require any additional monitoring in this area because the population and sulfur dioxide emissions do not exceed the required threshold for monitoring. The 2011 changes to the **carbon dioxide monitoring** requirements will also not require additional monitors in this area because the population is too small.

## **Appendix C.1 Annual Network Site Review Forms for 2011**

Waggin Trail in Taylorsville

Lenoir

Hickory

Crouse

Grier Middle School in Gastonia

Monroe Middle School in Monroe

Enochville

Rockwell

### Site Information

| Region MRO Site Name Waggin Trail AQS Site # 37- 003 - 0004   |  |  |  |  |
|---|--|--|--|--|
| Street Address- 106 Waggin Trail City Taylorsville, NC  |  |  |  |  |
| Urban Area Not in an  | Urban Area   Core-based                  | Statistical Area H   | lickory-Lenoir-Morganton, NC   |  |
| Enter Exact Method of Measuring   |  |  |  |  |
| Longitude <u>W 81.18962</u>   | Latitude N 35.929068                     | Other (explain)  | Explanation: Laptop Computer   |  |
| In Decimal Degrees  | In Decimal Degrees                       | (3)  | with GPS USB attachment with   |  |
|   |  |  | DeLorme Street Atlas software.   |  |
| Elevation Above/below Me  |  |  | <u>359.5</u>   |  |
| Name of nearest read to inlet   |  |  | ADT <u>0</u> Year <u>0</u>   |  |
|   | available; this is a rural dirt road     |  |  |  |
|   | jor road (m) 183.40 Direction fi         |  |  |  |
|   | Highway 16 North                         | AT REPORT OF THE PARTY OF THE P | 300 Year 2010  |  |
| Comments: Used http://www   | .ncdot.gov/travel/statemapping/t         | rafficvolumemaps/  | ACCUSAGE CHARLES OF THE CONTROL OF T |  |
| Site located near electrical sub  | ostation/high voltage power lines        | 12   | Yes □ No 🗵   |  |
| Distance of site to nearest r   | ailroad track                            | (m) 1554 Dir   | rection to RR ESE NA   |  |
| Distance of site to nearest r   | nower pole w/transformer                 | (m) 53 Direction S   | SSE  |  |
| Distance between site and drip  |  | Direction from site to   |  |  |
| Explain any sources of pote   |  |  | rage, stacks, vents, railroad tracks,  |  |
| construction activities, fast   | food restaurants, and swimm              | ing pools.   | A3   |  |
| None noted at the ti  | me of site review.                       |  |  |  |
|   |  |  |  |  |
| ANSWER ALL APPLICA  |  | 6-1  | CH Town  |  |
| Parameters  | Monitoring Objective                     | Scale  | Site Type  |  |
| □NA   | ☑General/Background                      | Micro  | SLAMS  |  |
| SO <sub>2</sub> (NAAQS) SO <sub>2</sub> (trace-level)   | Highest Concentration                    | Middle   | NCORE  |  |
| CT NO OLA AGOS  | Max O3 Concentration Population Exposure | Neighborhood_  | SPM  |  |
| ☐HSNO <sub>y</sub>  | Source Oriented                          | ⊠Urban   | A CONTRACTOR DE LA CONT |  |
| ⊠ O <sub>3</sub>  | Transport                                | Regional_  |  |  |
| Histographon  | Upwind Background                        |  |  |  |
| Air Toxics  | Welfare Related Impacts                  |  |  |  |
| ☐ HSCO (Not Micro)  | <del>- 1</del>                           |  |  |  |
| CO (trace-level)  | 2015 0 7/ 57 37 57                       | A 1042 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 11 11 6 17 17 17 17  |  |
| Probe inlet height (from ground) 2-15 m? Yes No Give actual measured height from ground (meters) 4.7  |  |  |  |  |
| Distance of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes No Actual measured distance from probe to supporting structure (meters) |  |  |  |  |
| Distance of probe inlet from other monitoring probe inlets > 1 m?  Yes No NA  |  |  |  |  |
| Is probe > 20 m from the nearest tree drip line? Yes S 6No (answer 6'd questions)   |  |  |  |  |
| *Is probe > 10 m from the nearest tree drip line if tree acts as an obstruction? Yes *No  |  |  |  |  |
| *Distance from probe to tree (m) Direction from probe to tree   |  |  |  |  |
| *Height of tree (m)   |  |  |  |  |
| Are there any obstacles to air flow? *Yes ☐ (answer *'d questions) No ☒   |  |  |  |  |
| *Identify obstacle Distance from probe inlet (m) Direction from probe inlet to obstacle   |  |  |  |  |
|   |  |  | otrudes above the probe? Yes 🔲 No 🔲  |  |
| Distance of probe to nearest traffic lane (m) 14 Direction from probe to nearest traffic lane W   |  |  |  |  |

| Parameters  | Monitoring Objective  | Scale  | Site Type                        |
|---|---|--|----------------------------------|
| ⊠ NA<br>□CO (Micro Only)  | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro  | SLAMS SPM_ SPM/OPN NONREGULATORY |
| Probe inlet height (from gr<br>Actual measured distance                     | round) 2.5 - 3.5 m?<br>from probe inlet to ground (meters)  | 3 6  | Yes No No                        |
|   | m horizontal (wall) and/or vertical (re<br>from probe to supporting structure (m  |  | >1 m? Yes ☐ No ☐                 |
| Distance of probe inlet to a  | nearest intersection > 10 m? nearest traffic lane 2 - 10 m? nearest tree drip line? Yes  %  | o ☐ (answer **'d questio   | Yes No Yes No O                  |
| *Distance from probe to tr<br>*Height of tree (m)                           | nearest tree drip line if tree acts as ar<br>ee (m)   | Direction from   |                                  |
| *Identify obstacle I<br>*Is distance from inlet pro                         | Distance from probe inlet (m) be to obstacle at least twice the heigh st traffic lane (m) Direction f   | Direction from probe inle<br>t that the obstacle protruc   | des above the probe? Yes 🗌 No 🛭  |
|   |   |  |                                  |
| Parameters  NA NO <sub>y</sub> (trace-level)                                | Monitoring Objective  General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts | Scale    Micro   Middle   Meighborhood   Urban   Regional   Meighborhood   Regional   Meighborhood   Meighborho | NCORE                            |
| Probe inlet height (from gr<br>Actual measured distance                     | round) 10-15 m?<br>from probe inlet to ground (meters)  | _  | Yes No                           |
| 지원님 이 하는 나가 2000 이 경기를 받는다고 있   | m horizontal and/or vertical supporting from probe to supporting structure (n   | TANK AND ARREST AND THE PARK   | Yes No                           |
| Distance of probe inlet fro   | m other monitoring probe inlets > 1 n   | n?   | Yes No NA                        |
|   | nearest tree drip line if tree acts as ar   |  |                                  |
| Are there any obstacles to *Identify obstacle I *Is distance from inlet pro | air flow? *Yes [ (answer *'d question) Distance from probe inlet (m) be to obstacle at least twice the heigh st traffic lane (m) Direction                                  | Direction from probe inle<br>t that the obstacle protruc   | des above the probe? Yes 🔲 No 🏾  |

| Parameters   | Monitoring Objective  | Scale  | Site Type                                  |
|--|---|--|--|
| NA □NO₂ (Near Road only) □CO (Near Road only)                    | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro  | SLAMS SPM NONREGULATORY                    |
| Distance of probe inlet from he<br>Actual measured distance from | d) 2-15 m? Yes No norizontal (wall) and/or vertical (room probe to supporting structure (mether monitoring probe inlets > 1 m?          | of) supporting structure ><br>ters)  | height from ground (meters)     1 m?   Yes |
| *Is probe > 10 m from the nea                                    | est tree drip line? Yes **No<br>rest tree drip line if tree acts as an <<br>m)  | obstruction? Yes 🗌 *   | No 🗆                                       |
| *Identify obstacle Dista<br>*Is distance from inlet probe to     | low? *Yes (answer *'d question<br>ance from probe inlet (m) (brown obstacle at least twice the height to<br>affic lane (m) (Direction f | ection from probe inlet to<br>that the obstacle protrude   | s above the probe? Yes 🗌 No 🗌              |
| Parameters   | Monitoring Objective  | Scale  | Site Type                                  |
| Air flow > 200 L/min   | Highest Concentration  Population Exposure  Source Oriented  Background  I ransport  Welfare Related Impacts                            | Micro Middle Neighborhood Urban Regional   | SLAMS  NCORE SPM NONREGULATORY             |
|  | d)  | The state of the s | □ > 15 m                                   |
|  | tal (wall) and/or vertical (platform<br>probe to supporting structure (me   |  |  |
| Actual measured distance betw                                    | M-10, TSP or Pb sampler inlets = :<br>veen collocated probes (meters)<br>tume inlet and any other high or lov                           | 2 to 4 m?  | Yes No NA                                  |
| Is probe > 20 m from the neare                                   | est tree drip line? Yes 🔲 *No   | (answer *'d question   | s)   |
| *Distance from probe to tree (i<br>*Height of tree (m)           | 20 C  | Direction from   | *No  probe to tree                         |
| *Identify obstacle Dista   |   | ection from probe inlet to   | s above the probe? Yes 🔲 No 🔲              |

| Parameters   | Monitoring Objective   | Scale   | Site Type  |
|--|--|---|--|
| NA NA  | General/Background   | Micro   | SLAMS  |
| Air flow < 200 L/min   | Highest Concentration_   | ☐Middle   | NCORE  |
| ☐ PM2.5<br>☐ PM10  | Population Exposure  | □Neighborhood_  | SPM  |
| PM10-2.5   | Source Oriented  | Urban   | I I NONKEGULATOR   |
| PM10 Lead (PB) PM2.5 Cont. (TEOM)  | Transport  | Regional  |  |
| PM2.5 Cont. (BAM)  | Upwind Background  |   |  |
| PM2.5 Spec. (SASS)   | Welfare Related Impacts  |   |  |
| ☐ PM2.5 Spec. (URG)<br>☐ PM2.5 Cont. Spec.   |  |   |  |
| Probe inlet height (from gro<br>Actual measured distance fr                        | und)   |   | > 15 m   |
|  | ontal (wall) and/or vertical (platform on<br>ny low volume monitor and any other   |   |  |
| site = 1 m or greater?   | ny low volume monitor and any other  | low volume monitor at th  | Yes No NA  |
| or greater?  | lume monitor inlets and any Hi-Volur   |   | 2 m Yes □ No □ NA □  |
| TEOM, BAM & TEOM) Lo   | tors (Two FRMs, FRM & BAM, FRM<br>cated at Site?   | *Yes 🗌 (ar  | nswer *'d questions) No 🗌 NA [   |
| *Distance between collocate  | ed PM 2.5 sampler inlets = 1 to 4 m?<br>pler inlets within 1 m vertically of eac   |   | Give actual (meters)   |
| * Distance between collocat  | llocated with a SASS monitor at the si<br>ed speciation sampler inlets = 1 to 4 r<br>sampler inlets within 1 m vertically of | n? Yes □ N  | d questions) No NA Good Give actual (meters) O Good Give actual (meters)   |
| Is a low-volume PM10 mon<br>to measure PM10-2.5?                                   | itor collocated with a PM2.5 monitor   | at the site  *Yes □ (ar   | nswer *'d questions) No 🗌 NA 🛭   |
| *Are collocated PM10 and I   | ed PM10 and PM2.5 inlets for PM10-2<br>PM2.5 sampler inlets within 1 m vertical<br>arest tree drip line? Yes *No             | cally of each other?  | Yes No No  |
| *Is probe > 10 m from the n<br>*Distance from probe to tree<br>*Height of tree (m) | earest tree drip line if tree acts as an o   |   |  |
|  | ir flow? *Yes 🔲 (answer *'d question   | ıs) No 🗌  |  |
| *Identify obstacle Di  | stance from probe inlet (m)Di  | rection from probe inlet to   | o obstacle   |
| *Is distance from inlet probe  | e to obstacle at least twice the height the<br>traffic lane (m) Direction fr   | hat the obstacle protrudes  | above the probe? Yes No  |
| RECOMMENDATIONS:   | trattic tane (m) Direction in  | om probe to nearest tratti  | c rane   |
|  | atus? Yes ⊠ *No □ (answer *'d  | questions)  |  |
| 5  | ejective? Yes [ (enter new objective   | 1.00  | ) No □-  |
|  | sentativeness? Yes [ (enter new s  | THE RESERVE TO SERVE | ) No [   |
| *4) Relocate site? Yes [   |  | 0.000   |  |
| Comments   |  |   |  |
| Reviewer Paul Chappin  | *  |   | Date December 20, 2011   |
| Ambient Monitoring Coord   | dinator D. W. Manning  |   | DateJanuary 25, 2012   |
| Revised 2012-01-30   |  |   | Belle Recording Charles and Carlotte   |
| 110/1000 2012-01-30  |  |   |  |
|  |  |   |  |
| WAGGIN TRAIL   | SITE REVIEW 2011.DOCX  | Joette Steger   | Grand State Company of the Company o |

#### Site Information

| Region ARO Site Name Lenoir   |  | AQS Site # 37- 027 - 0003                                     |  |  |
|---|--|---|--|--|
| Street Address-219 Nuway Circle   |  | City Lenoir   |  |  |
| Urban Area LENOIR Core-based Statistical Area Hickory-Lenoir-Morganton, NC  |  |   |  |  |
| Enter   | r Exact  |   | •                                      |  |
| Longitude81.530612  | Latitude <u>35.935934</u>  | Metho   | d of Measuring                         |  |
| In Decimal Degrees  | In Decimal Degrees   | Other (explain) E   | xplanation: Google Earth               |  |
|   | Elevation Above/below Mean Sea Level (in meters) 372   |   |  |  |
| Name of nearest road to inlet p   | robe Nuway Circle ADT 4900   | Year <u>2008</u>  |  |  |
| Comments:   |  |   |  |  |
| Distance of site to nearest major   | or road (m) 208.00 Direction from  | n site to nearest major road                                  | SW                                     |  |
| Name of nearest major road 1  | Hwy 321 ADT 18000 Year 2009  | 9   |  |  |
| Comments:   |  |   |  |  |
| Site located near electrical sub  | station/high voltage power lines?  |   | Yes ⊠ No □                             |  |
| Distance of site to nearest ra  | ilroad track   | (m) 962Direction to RR  | WSW □NA                                |  |
|   | CTTL DOWN ADVIOUS TO A VALUE OF THE VALUE OF |   |  |  |
|   | line of water tower (m)  |   |  |  |
|   | ntial bias; include cultivated fie   |   |  |  |
| construction activities, fast   | food restaurants, and swimming   | g pools.  |  |  |
| ANSWER ALL APPLICA  | BLE QUESTIONS:   | 2   | gi) ==                                 |  |
| Parameters  | Monitoring Objective   | Scale   | Site Type                              |  |
| SO₂ (NAAQS)     SO₂ (trace-level)     NO₂ (trace-level)     NO₂ (NAAQS)     HISNO₂     O₃     NH₃     NH₃   | General/Background  Ilighest Concentration  Max O3 Concentration  Population Exposure  Source Oriented  Transport  Upwind Background  Welfare Related Impacts  | Micro<br>  Middle<br>  Neighborhood<br>  ⊠Urhan<br>  Regional | SLAMS  NCORE SPM SPM/OPN NONREGULATORY |  |
|   | d) 2-15.m? Yes 🛛 No 🗌  | Give actual measured h  | eight from ground (meters)             |  |
|   | orizontal (wall) and/or vertical (ro   |   | m? Yes ⊠ No □                          |  |
| Actual measured distance from probe to supporting structure (meters)  |  |   |  |  |
| Distance of probe inlet from other monitoring probe inlets > 1 m?  Yes □ No □ NA □  Is probe > 20 m from the nearest tree drip line? Yes □ *No □ (answer *'d questions) |  |   |  |  |
|   |  |   | 10.65                                  |  |
|   | rest tree drip line if tree acts as an   |   |  |  |
| *Distance from probe to tree (  | m)   | Direction from p  | robe to tree                           |  |
| *Height of tree (m)   | 0 0 8V [] / 8t l   | \\$1- M   |  |  |
|   | flow? *Yes 🗌 (answer **d questi  |   |  |  |
| *Identify obstacle Distance from probe inlet (m)Direction from probe inlet to obstacle  |  |   |  |  |
|   |  |   | above the probe? Yes 🗌 No 🗍            |  |
| Distance of probe to nearest tr   | affic lane (m) 145 Direction fro   | om probe to nearest traffic l                                 | ane <u>E</u>                           |  |

LENOIR SITE REVIEW 2011. DOCK

| Parameters   | Monitoring Objective   | Scale  | Sile Type                             |
|--|--|--|---------------------------------------|
| ⊠ NA<br>□CO (Micro Only)   | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts  | □Micro   | SLAMS SPM_ SPM/OPN NONREGULATORY      |
| Probe inlet height (from gr<br>Actual measured distance                      | round) 2.5 - 3.5 m?<br>from probe inlet to ground (meters) _   |  | Yes No                                |
|  | m horizontal (wall) and/or vertical (ro<br>from probe to supporting structure (m   |  | >1 m? Yes ☐ No ☐                      |
| Distance of probe inlet to   | nearest intersection > 10 m? nearest traffic lane 2 - 10 m? nearest tree drip line? Yes *Ne  | o (answer *'d questic  | Yes No Yes No No                      |
| *Distance from probe to tr<br>*Height of tree (m)                            | nearest tree drip line if tree acts as an aree (m) air flow? *Yes (answer *'d question Distance from probe inlet (m) I he to obstacle at least twice the height at traffic lane (m) Direction from the properties of the lane from the properties of the lane from the properties of the lane from Direction from the properties of the lane from Direction from from | ons) No  Direction from probe into that the obstacle protrus | et to obstacle No                     |
| Parameters   | Monitoring Objective   | Scale  | Site Type                             |
| ⊠NA<br>□NO <sub>y</sub> (trace-level)  | General/Background  IIighest Concentration  Max O3 Concentration  Population Exposure  Source Oriented  Transport  Upwind Background  Welfare Related Impacts  | Micro Middle Neighborhood Urban Regional                     | SLAMS NCORE SPM SPM_OPN NONREGULATORY |
| Probe inlet height (from gr<br>Actual measured distance                      | round) 10-15 m?<br>from probe inlet to ground (meters) _   |  | Yes No                                |
|  | m horizontal and/or vertical supporting from probe to supporting structure (m  |  | Yes No No                             |
| Distance of probe inlet fro  | m other monitoring probe inlets > 1 m  | 2  | Yes No NA                             |
|  | nearest tree drip line? Yes = *No<br>nearest tree drip line if tree acts as an<br>ee (m)   | obstruction? Yes   |                                       |
| Are there any obstacles to *Identify obstacle I. *Is distance from inlet pro | air flow? *Yes (answer *'d question Distance from probe inlet (m) (be to obstacle at least twice the height st traffic lane (m) (Direction)  | Direction from probe inle<br>that the obstacle protrue       | des above the probe? Yes 🗌 No 🗌       |

LENOIR SITE REVIEW 2011. DOCK

| Parameters  | Monitoring Objective  | Scale   | Site Type  |
|---|---|---|--|
| NA  NO₂ (Near Road only)  CO (Near Road only)                                       | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | □Micro  | SI.AMS SPM NONREGULATORY                           |
| Distance of probe inlet from<br>Actual measured distance from                       | and) 2-15 m <sup>2</sup> Yes No No horizontal (wall) and/or vertical (room probe to supporting structure (moother monitoring probe inlets > 1 m       | of) supporting structure ><br>eters)                      | height from ground (meters)<br>1 m? Yes  No  No NA |
| *Is probe > 10 m from the no<br>*Distance from probe to tree<br>*Height of tree (m) | rest tree drip line? Yes #No<br>carest tree drip line if tree acts as an<br>(m)   | obstruction? Yes :  | *No □  |
| *Identify obstacle Dis<br>*Is distance from inlet probe                             | r flow? *Yes [ ] (answer *'d question<br>stance from probe inlet (m) Direction<br>to obstacle at least twice the height<br>traffic lane (m) Direction | rection from probe inlet to<br>that the obstacle protrude | es above the probe? Yes 🔲 No 🗍                     |
| Parameters  | Monitoring Objective  | Scale   | Site Type  |
| Air flow > 200 L/min   PM10   TSP   Pb  | Highest Concentration Population Exposure Source Oriented Background Transport Welfare Related Impacts  | Micro   | □ NCORE  |
|   | and)  | GARL TANKSHIMOTORY  | □ > 15 m   |
|   | ontal (wall) and/or vertical (platform<br>om prohe to supporting structure (m   |   | ture ≥ 2 m? Yes ☐ No ☐                             |
| Actual measured distance be   | PM-10, TSP or Pb sampler inlets –<br>tween collocated probes (meters) _<br>olume inlet and any other high or lo                                       |   | Yes  |
| Is probe > 20 m from the nea  | rest tree drip line? Yes 🗌 *No  | (answer *'d question                                      | is)  |
| *Distance from probe to tree<br>*Height of tree (m)                                 |   | Direction from  | No  probe to tree                                  |
| *Identify obstacle Dis  | r flow? *Yes [ (answer *'d question tance from probe inlet (m)Direction to obstacle at least twice the height traffic lane (m) Direction              | ection from probe inlet to                                | es above the probe? Yes 🔲 No 🔲                     |

| Parameters  | Monitoring Objective  | Scale   | Site Type   |
|---|---|---|---|
| NA  Air flow < 200 L/min  PM2.5  PM10  PM10-2.5  PM10 Lead (PB)  PM2.5 Cont. (TEOM)  PM2.5 Cont. (BAM)  PM2.5 Spec. (SASS)  PM2.5 Spec. (URG)  PM2.5 Cont. Spec.      | General/Background Highest Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts  | ☐Micro<br>☐Middle<br>☐Neighborhood<br>☐Urban<br>☐Regional                                 | SLAMS NCORE SPM NONREGULATORY                                     |
| Distance of inlet from horizo<br>Distance between inlets of as<br>site = 1 m or greater?<br>Distance between all low vol<br>or greater?<br>Are collocated PM2.5 Monit | om probe inlet to ground (meters)<br>ontal (wall) and/or vertical (platform or<br>ny low volume monitor and any other l<br>hume monitor inlets and any Hi-Volum<br>ors (I'wo FRMs, FRM & BAM, FRM       | roof) supporting structure:<br>low volume monitor at the<br>te PM-10 or TSP inlet = 2 m   | Yes ☐ No ☐ NA ☐   |
| *Are collocated PM2.5 samp  | cated at Site?<br>d PM 2.5 sampler inlets - 1 to 4 m?<br>oler inlets within 1 m vertically of each<br>located with a SASS monitor at the sit  | Yes No Yes No No  | Give actual (meters)<br>Give actual (meters)<br>uestions) No NA   |
| * Are collocated speciation s<br>Is a low-volume PM10 moni<br>to measure PM10-2.5?  | ed speciation sampler inlets — 1 to 4 m<br>sampler inlets within 1 m vertically of a<br>itor collocated with a PM2.5 monitor at   | each other? Yes No to the site *Yes (answ   | Give actual (meters) Give actual (meters) er *'d questions) No NA |
| *Are collocated PM10 and F<br>Is probe > 20 m from the nes<br>*Is probe > 10 m from the nes<br>*Distance from probe to tree<br>*Height of tree (m)                    | d PM10 and PM2.5 inlets for PM10-2.  2M2.5 sampler inlets within 1 m vertical arest tree drip line? Yes . *No [ carest tree drip line if tree acts as an ob- tim]  r flow? *Yes . (answer *'d questions | ally of each other?  (answer **d questions)  astruction? Yes [ *No    Direction from prob | Yes No No   |
| *Identify obstacle Dis<br>*Is distance from inlet probe<br>Distance of probe to nearest   | stance from probe inlet (m) Din<br>to obstacle at least twice the height th<br>traffic lane (m) Direction from  | ection from probe inlet to ob<br>at the obstacle protrudes abo                            | we the probe? Yes No No   |
| *2) Change monitoring ob  | itus? Yes ⊠ *No □ (answer *'de<br>jective? Yes □ (enter new objective<br>entativeness? Yes □ (enter new so<br>□ No □  |   | ) No []-<br>) No []   |
| Comments:  Reviewer Steve Ensley  |   | 9   | DateJamiary 19, 2012  |
| Ambient Monitoring Coord<br>Revised 2012-05-09  | linator Steve Ensley  |   | DateJanuary 19, 2012  |

LENOIR SITE REVIEW 2011.DOCX

#### Site Information

| Region MRO  | MRO Site Name Hickory AQS Site # 37- 035 - 0004 |   |                     | - 0004                      |  |  |
|---|---|---|---------------------|-----------------------------|--|--|
| Street Address  | 1st .   | Ave. SW at 15th Street S  | SW_                 | City Ilickon                |  | 10 10 10 10 10 10 10 10 10 10 10 10 10 1 |
| Urban Area HI   |   |   |                     |                             |  | ir-Morganton, NC                         |
|   | Enter   | Exact   | 15                  | Me                          | ethod of Measu   | ring                                     |
| Longitude W8  | 1.365   | Latitude N 35.72  | 90 Oth              | er (explain)                | Explanation:   | Laptop Computer                          |
| In Decimal Degrees  |   | In Decimal Degrees  |                     | with GPS USB attachment and |  |  |
|   |   |   | 4                   | 3                           |  | t Atlas software                         |
| Elevation Above/be  | low Me  | an Sea Level (in mete   | ers)                |                             | 349  |  |
|   |   | probe 15th Street SW  |                     | K 77                        |  |  |
| Comments: 16.8 M as measured from the TEOM; no traffic data available for this road.  |   |   |                     |                             |  |  |
|   |   | or road (m) 17.9 as mea   |                     |                             | om site to nearest n   | najor road SSW                           |
|   |   | 2 <sup>nd</sup> Ave. SW A   |                     |                             |  |  |
| Comments: Used htt  | p://www   | .ncdot.gov/travel/statems   | apping/traffic      | volumemaps/                 |  |  |
| Site located near elect   | rical sub                                       | station/high voltage pow  | er lines?           |                             |  | Yes ⊠ No □                               |
| Distance of site to n   | carest r  | ailroad track   | (m)                 | 230 from TEO                | M Direction to   | RR N NA                                  |
| Distance of site to n   | carest r  | ower note w/transform   | er (m)              | 26.5 from TEON              | A Direction F  |  |
| Distance of site to nearest power pole w/transformer (m) 26.5 from TEOM Direction E  Distance between site and drip line of water tower (m) 12.8 from URG Direction from site to water tower NNW NA       |   |   |                     |                             |  |  |
|   |   | ntial bias; include culti   |                     |                             |  |  |
| construction activiti   | es, fast  | food restaurants, and s   | wimming po          | ols.                        |  |  |
| Mone noted at t   | he ti   | me of site review   | <u> </u>            |                             |  |  |
|   |   | Sand Fair Committee of the Committee of | 709                 |                             |  |  |
| ANSWER ALL AI   | PLICA   | BLE QUESTIONS:<br>Monitoring Objects  | - T                 | Scale                       |  | C:1. T                                   |
| CONTRACTOR OF   | 51.5  | Monitoring Object   | ive                 | Scale                       | Terror co-scien  | Site Type                                |
| NA Dec Ala Aces   |   | General/Background_   |                     | Micro                       | DSLAM  | S  |
| SO <sub>2</sub> (NAAQS)   | 1000  | Highest Concentration   | [                   | Middle                      | NCOR   | E  |
| □ NO <sub>x</sub> (NAAQS  | C   | Max O3 Concentration Population Exposure_   |                     | Neighborhood                | SPM_   |  |
| ☐HSNO,  | s   | Source Oriented   |                     | Urban                       | 1 10 10 10 10 10 10 10 10 10 10 10 10 10   | 12.5                                     |
|   |   | Transport   | . I -               | Regional                    | The State of the S | EGULATORY                                |
| □ NH <sub>3</sub> □ Hydrocarbon   |   | Upwind Background_  |                     |                             |  | BOOLATOKI                                |
| Air Toxics  |   | Welfare Related Impac   | cts                 |                             |  |  |
| ☐ HSCO (Not Mi  | cro)  |   |                     |                             |  |  |
| CO (trace-level   |   |   |                     |                             |  |  |
|   |   | nd) 2-15 m? Yes 🗌 🐧   |                     |                             | sured height from g  |  |
|   |   | norizontal (wall) and/or v  |                     |                             | ure≥1 m? Yes[  | □ No □                                   |
| 5-094 (Mag.) (0. M-0  |   | n probe to supporting str   | THE PERSON NAMED IN | s) <del></del>              | 0000   |  |
| Distance of probe inlet from other monitoring probe inlets > 1 m? Yes No NA Service No NA Service No NA Service No NA Service No Na NA Service No Na NA Service No Na |   |   |                     |                             |  |  |
|   |   |   |                     |                             |  |  |
| 125   |   | arest tree drip line if tree  |                     |                             |  |  |
| 215   | to tree   | (m)   |                     | Direction                   | from probe to tree   | —  |
| *Height of tree (m)   | an to ni-                                       | flow? *Yes [] (answer *   | Ed quartiess        | No.CT                       |  |  |
| 28  |   |   |                     |                             |  |  |
|   |   | ance from probe inlet (m)   |                     |                             |  |  |
|   |   | to obstacle at least twice t  |                     |                             |  | robe? Yes No                             |
| Distance of probe to  | nearest t                                       | raffic lane (m)   | Direction from      | n probe to neare:           | st traffic jane  |  |

HICKORY SITE REVIEW 2011.DOCX

| Parameters   | Monitoring Objective  | Scale                           | Site Type                       |
|--|---|---------------------------------|---------------------------------|
| ⊠ NA<br>□CO (Micro Only)   | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | □Micro                          | SLAMS SPM SPM/OPN NONREGULATORY |
| Probe inlet height (from gr<br>Actual measured distance  | ound) 2.5 - 3.5 m?<br>from probe inlet to ground (meters) _   |                                 | Yes No                          |
|  | m horizontal (wall) and/or vertical (ro<br>from probe to supporting structure (m  |                                 | >1 m? Yes ☐ No ☐                |
| Distance of probe inlet to a   | nearest intersection > 10 m?<br>nearest traffic lane 2 - 10 m?<br>nearest tree drip line? Yes   | o∏ (unswer **d onestio          | Yes No Yes No                   |
| *is probe > 10 m from the<br>*Distance from probe to tr<br>*Height of tree (m)<br>Are there any obstacles to | nearest tree drip line if tree acts as an<br>ec (m)air flow? *Yes [] (answer *'d questi   | obstruction? Yes Direction from | *No   n probe to tree           |
| *Is distance from inlet pro  | Distance from probe inlet (m)l be to obstacle at least twice the height st traffic lane (m) Direction for   | that the obstacle protrud       | les above the probe? Yes 🔲 No 🛭 |
| Parameters   | Monitoring Objective  | Scale                           | Site Type                       |
| ⊠ NA<br>□ NO <sub>y</sub> (trace-level)  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts | Micro                           | NCORESPM                        |
| Probe inlet height (from gr<br>Actual measured distance  |   |                                 | Yes No                          |
|  | m horizontal and/or vertical supporting from probe to supporting structure (m   |                                 | Yes No                          |
| Distance of probe inlet fro  | m other monitoring probe inlets > 1 m   | 1?                              | Yes No NA                       |
| 7.1  | nearest tree drip line? Yes *N<br>nearest tree drip line if tree acts as an<br>ee (m)   | obstruction? Yes                |                                 |
| Are there any obstacles to   | air flow? *Yes [ (answer *'d questi Distance from probe inlet (m)I be to obstacle at least twice the height st traffic lane (m)Direction              | Direction from probe inle       | les ahove the probe? Yes 🔲 No [ |

| Parameters  | Monitoring Objective  | Scale   | Site Type                        |
|---|---|---|----------------------------------|
| NA     □NO₂ (Near Road only)     □CO (Near Road only)           | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro   | SPMNONREGULATORY                 |
| Distance of probe inlet from l<br>Actual measured distance from | nd) 2-15 m? Yes No norizontal (wall) and/or vertical (rome probe to supporting structure (months monitoring probe inlets > 1 m                    | of) supporting structure ><br>eters)                      |                                  |
| *Is probe > 10 m from the ne                                    | rest tree drip line? Yes = *No<br>arest tree drip line if tree acts as an<br>(m)  | obstruction? Yes [ '                                      | *No 🗌                            |
| *Identify obstacle Dist<br>*Is distance from inlet probe        | flow? *Yes [ (answer *'d questic<br>ance from probe inlet (m)Dir<br>to obstacle at least twice the height<br>raffic lane (m) Direction            | rection from probe inlet to<br>that the obstacle protrude | es above the probe? Yes 🔲 No 🔲   |
| Parameters  | Monitoring Objective  | Scale   | Site Type                        |
| Air flow > 200 L/min  ☐ PM10 ☐ TSP ☐ Pb                         | Highest Concentration Population Exposure Source Oriented Background Transport Welfare Related Impacts  | ☐Micro  | ☐ NCORE                          |
|   | nd) □ < 2 m ⊠ 2-7m _<br>m probe inlet to ground (meters) ⊞  |   |                                  |
|   | ntal (wall) and/or vertical (platform<br>m probe to supporting structure (mo  |   | ture > 2 m? Yes □ No ☒           |
| Actual measured distance bet                                    | PM-10, TSP or Pb sampler inlets =<br>ween collocated probes (meters) _<br>plume inlet and any other high or lo                                    | 3.556   | Yes⊠ No □ NA □<br>Yes⊠ No □ NA □ |
| Is probe > 20 m from the near                                   | rest tree drip line? Yes 🗵 *No  | answer **d question                                       | s)                               |
| *Distance from probe to tree<br>*Height of tree (m)             | arest tree drip line if tree acts as an (m)   | Direction from  | *No  probe to tree               |
| *Identify obstacle Dist<br>*Is distance from inlet probe        | flow? *Yes [ (answer *'d questic<br>ance from probe inlet (m)Direct<br>to obstacle at least twice the height<br>raffic lane (m) 18 Direction from | ection from probe inlet to<br>that the obstacle protrude  | es above the probe? Yes 🔲 No 🔲   |

| Parameters   | Monitoring Objective  |  | Scale  | Site Type                                |
|--|---|--|--|--|
| ☐ NA  Air flow < 200 L/min  ☐ PM2.5  ☐ PM10  ☐ PM10-2.5  ☐ PM10 Lead (PB)  ☐ PM2.5 Cont. (TEOM)  ☐ PM2.5 Cont. (BAM)  ☐ PM2.5 Spec. (SASS)  ☐ PM2.5 Spec. (URG)  ☐ PM2.5 Cont. Spec.   | □General/Background     □Highest Concentration     ☑Population Exposure     □Source Oriented     □Transport     □Upwind Background     □Welfare Related Impacts   | □Middi<br>☑Neigh<br>□Urbar   | o<br>le<br>nhorhond<br>onal  | SI.AMS  NCORE SPM NONREGULATORY          |
| Actual measured distance for<br>Distance of inlet from horize<br>Distance between inlets of a<br>site = 1 m or greater?<br>Distance between all low vo<br>or greater?<br>Are collocated PM2.5 Moni<br>TBOM, BAM & TBOM) Le<br>*Distance between collocate  | om probe inlet to ground (meters) PM ontal (wall) and/or vertical (platform or ny low volume monitor and any other lature monitor inlets and any Hi-Volum tors (Two FRMs, FRM & BAM, FRM ocated at Site?  Ed PM 2.5 sampler inlets - 1 to 4 m?  | roof) suppo<br>low volume i<br>e PM-10 or  | 2.5A 2.31. TEOM rting structure > 2 monitor at the  TSP inlet = 2 m  *Yes ⊠ (answer Yes ⊠ No □ C   | m?                                       |
| Is an URG 3000 monitor co * Distance between collocat * Are collocated speciation: Is a low-volume PM10 mon to measure PM10-2.5? *Distance between collocate * Are collocated PM10 and I Is probe > 20 m from the ne * Is probe > 10 m from the n * Distance from probe to tree * Height of tree (m) Are there any obstacles to at * Identify obstacle Di * Is distance from inlet probe | pler inlets within 1 m vertically of each flocated with a SASS monitor at the site of speciation sampler inlets — 1 to 4 m sampler inlets within 1 m vertically of a sitor collocated with a PM2.5 monitor at 2d PM10 and PM2.5 inlets for PM10-2. PM2.5 sampler inlets within 1 m vertical arest tree drip line? Yes one of the carest tree drip line if tree acts as an obe (m) | e? *Yes each other? t the site  5 samplers ally of each of eac | (answer *'d ques Yes No Yes No  *Yes No  *Yes No  *Yes No  *Yes (answer  = 1 to 4 m? Yes other? Yes 'd questions) Yes *No  ction from probe to probe inlet to obsta le protrudes above | No N |
| *2) Change monitoring ob   |   |  |  | ) No []-<br>) No []<br>December 20, 2011 |
| Ambient Monitoring Coord<br>Revised 2012-05-09   | dinator D.W. Manning  |  | Da   | teJanuary 27, 2012                       |

HICKORY SITE REVIEW 2011.DOCX

#### Site Information

| Region MR  | Region MRO Site Name Crouse |  | AQS Site # 37-109 - 0004   |                    |   |                         |
|--|-----------------------------|--|--|--------------------|---|-------------------------|
| Street Add   | ress <u>- 148</u>           | 7 Riverview Rd                                     |  | City Lincolnton NC |   |                         |
| Urban Area   | Not in a                    | n Urban Area                                       | Core-based Sta   | itistical Ar       | ea Lincolnton, NC                       |                         |
|  |                             | Enter Exact  |  | 0                  |   |                         |
| Longitude  | W 81.276                    | 8 Latitude   | N 35.4385  | 2.                 | Method of Measur                        | ing                     |
| In Decimal Degr  | rees                        | In Decimal   | Degrees  | GPS E              | xplanation: Mapp                        | ing                     |
|  |                             | fean Sea Level (în m                               |  | 310 5240           | <u>261</u>                              | 1000                    |
| Name of nearest road to inlet probe Riverview Rd ADT 2200 Year 2009  |                             |  |  |                    |   |                         |
| Comments:  |                             |  |  |                    |   |                         |
| Distance of site   | to nearest m                | ajor road (m) 78.00 Di                             | rection from site to r   | earest major r     | oad <u>N</u>                            |                         |
| Name of nearest  | major road                  | W. Hwy 150 Bypass                                  | ADT <u>8600</u> Year <u>2</u> 0  | 010                |   |                         |
| Comments:  | A35 1                       | 200  |  |                    |   |                         |
| Site located near  | electrical s                | ubstation/high voltage p                           | ower lines?  |                    | Yes [                                   | □ No 🛛                  |
| Distance of site   | e to nearest                | railroad track                                     | (m)  | 302Directio        | n to RR W NA                            | (0)                     |
|  |                             |  | 3000   |                    | 60000000000000000000000000000000000000  | 76.                     |
|  |                             | power pole w/transfo<br>rip line of water tower (i |  | 52 Directio        |   | NA                      |
|  |                             |  |  |                    | ge, stacks, vents, railr                |                         |
|  |                             | st food restaurants, and                           |  |                    | <b>6</b> 73 STUT-1012 J. Z. 1013 STUT-1 | 3C41 3T-351 91,753903E- |
|  | or dedect of our sale       |  |  |                    |   |                         |
|  |                             |  |  |                    |   |                         |
|  |                             | ABLE QUESTIONS:                                    |  |                    |   |                         |
| Paramet  | ers                         | Monitoring Obj                                     | ective   | Scale              | Site '                                  | Гуре                    |
| □NA  | 1200                        | ☐General/Backgroun                                 |  | cro                | ✓SLAMS                                  |                         |
| SO <sub>2</sub> (NAA   |                             | Highest Concentrat                                 | ion   Mi   | ddle               | NCORE                                   | 2                       |
| □ NO <sub>x</sub> (NA  |                             | Max O3 Concentrat                                  |  | ighborhood_        | SPM                                     | 76<br>40                |
| HSNO,  | 0.0034                      | Population Exposur Source Oriented                 | <u> </u>   | oan                | 100 KD - 5-05 KH 1999                   |                         |
| ⊠ O <sub>3</sub>   |                             | Transport  |  | gional             | □NONREGUI                               |                         |
| ☐ NH <sub>3</sub><br>☐ Hydrocarl   | oon.                        | Upwind Backgroun                                   | d  |                    |   |                         |
| Air Toxic  |                             | ☐Welfare Related Im                                | pacts  |                    |   |                         |
| HSCO (N  |                             | <del></del>  |  |                    |   |                         |
| CO (trace  |                             | und) 2-15 m? Yes 🛛                                 | No.C. Circ   | constant           | red height from ground                  | (                       |
|  |                             | n horizontal (wall) and/o                          | 5 30.000 No. 100 Sept. 100 |                    | 즐거워 하는 사람들이 되었다면 하는 것이 없는 것이 없었다.       |                         |
|  |                             | om probe to supporting                             |  |                    | e-imi res M                             | оЦ                      |
| 15 X   |                             | other monitoring probe                             |  |                    | Yes□ N                                  | o 🗆 NA 🖾                |
| Is probe > 20 m  | from the ne                 | arest tree drip line? Y                            | es ⊠ *No □ (an   | swer *'d ques      |   |                         |
| *Is probe > 10 m   | n from the r                | earest tree drip line if tr                        | ee acts as an obstruc  | tion? Yes          | ] *No∏                                  |                         |
| *Distance from   |                             |  |  |                    | om probe to tree                        |                         |
| *Height of tree  |                             | 100  |  |                    |   |                         |
|  |                             | ir flow? *Yes 🔲 (answ                              | er *'d questions) No   | $\boxtimes$        |   |                         |
| *Identify obstac   | le Di                       | stance from probe inlet                            | (m) Direction  | from probe in      | nlet to obstacle                        |                         |
| THE REST OF THE PARTY OF THE PA |                             |  |  |                    | udes above the probe?                   | Yes No                  |
|  |                             | traffic lane (m) 52 I                              |  |                    |   |                         |
|  |                             |  |  |                    |   |                         |

| Parameters   | Monitoring Objective  | Scale  | Site Type                       |
|--|---|--|---------------------------------|
| ⊠ NA<br>□CO (Micro Only)   | Highest ConcentrationPopulation ExposureSource OrientedTransportWelfare Related Impacts   | □Micro   | SLAMS SPM SPM/OPN NONREGULATORY |
| Probe inlet height (from gr<br>Actual measured distance                        | round) 2.5 - 3.5 m?<br>from probe inlet to ground (meters) _  | _  | Yes No                          |
|  | m horizontal (wall) and/or vertical (ro<br>from probe to supporting structure (m  |  | >1 m? Yes No                    |
| Distance of probe inlet to   | nearest intersection > 10 m? nearest traffic lane 2 - 10 m? nearest tree drip line? Yes \( \text{\sqrt{m}} \)   | o (answer *'d questio                                    | Yes No Yes No nos)              |
| *Is probe > 10 m from the<br>*Distance from probe to tr<br>*Height of tree (m) | nearest tree drip line if tree acts as an ee (m)air flow? *Yes (answer *'d questi   | obstruction? Yes Direction from                          | *No 🗆                           |
| *Identify obstacle I<br>*Is distance from inlet pro                            | Distance from probe inlet (m)I be to obstacle at least twice the height st traffic lane (m)Direction fr   | Direction from probe inle<br>t that the obstacle protruc | les above the probe? Yes 🗌 No 🗍 |
| Parameters   | Monitoring Objective  | Scale  | Site Type                       |
| ⊠ NA<br>□ NO <sub>y</sub> (trace-level)  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts | Micro Middle Neighborhood Urban Regional                 | NCORE                           |
| Probe inlet height (from gr<br>Actual measured distance                        | round) 10-15 m?<br>from probe inlet to ground (meters) _  |  | Yes No                          |
|  | m horizontal and/or vertical supportin<br>from probe to supporting structure (m   |  | Yes No                          |
| Distance of probe inlet fro  | m other monitoring probe inlets > 1 m   | 1?   | Yes No NA                       |
|  | nearest tree drip line? Yes #N nearest tree drip line if tree acts as an ee (m)   | obstruction? Yes   |                                 |
| *Identify obstacle I   | air flow? *Yes (answer *'d questi<br>Distance from probe inlet (m)I<br>be to obstacle at least twice the height<br>st traffic lane (m) Direction      | Direction from probe inle                                | des above the probe? Yes 🗌 No 🔲 |

| Parameters   | Monitoring Objective  | Scale  | Site Type                                  |
|--|---|--|--|
| NA □NO₂ (Near Road only) □CO (Near Road only)  | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro  | SLAMS SPM NONREGULATORY                    |
| Distance of probe inlet from he<br>Actual measured distance from                             | d) 2-15 m? Yes No norizontal (wall) and/or vertical (room probe to supporting structure (mether monitoring probe inlets > 1 m?                | of) supporting structure ><br>ters)  | height from ground (meters)     1 m?   Yes |
| *Is probe > 10 m from the nea  | est tree drip line? Yes **No<br>rest tree drip line if tree acts as an <<br>m)  | obstruction? Yes 🗌 *   | No 🗆                                       |
| Are there any obstacles to air f  *Identify obstacle Dista  *Is distance from inlet probe to | low? *Yes (answer *'d question<br>ince from probe inlet (m) (Direc-<br>tion obstacle at least twice the height<br>affic lane (m) (Direction f | ection from probe inlet to<br>that the obstacle protrude   | s above the probe? Yes 🗌 No 🗌              |
| Parameters   | Monitoring Objective  | Scale  | Site Type                                  |
| Air flow > 200 L/min   | Highest Concentration  Population Exposure  Source Oriented  Background  I ransport  Welfare Related Impacts                                  | Micro Middle Neighborhood Urban Regional   | SLAMS NCORE SPM NONREGULATORY              |
|  | d)  | The state of the s | □ > 15 m                                   |
|  | tal (wall) and/or vertical (platform<br>probe to supporting structure (me   |  |  |
| Actual measured distance betw  | M-10, TSP or Pb sampler inlets = :<br>veen collocated probes (meters)<br>tume inlet and any other high or lov                                 | 2 to 4 m?  | Yes No NA                                  |
| Is probe > 20 m from the neare   | est tree drip line? Yes 🔲 *No   | (answer *'d question   | s)   |
| *Distance from probe to tree (i<br>*Height of tree (m)                                       | 20 C  | Direction from   | *No  probe to tree                         |
| *Identify obstacle Dista   |   | ection from probe inlet to   | s above the probe? Yes 🔲 No 🔲              |

| Parameters   | Monitoring Objective  | Scale  | Site Type                                    |
|--|---|--|--|
| ⊠ NA   | General/Background  | Micro  | SLAMS  |
| Air flow < 200 L/min   | Highest Concentration_  | Middle   | □ NCORE                                      |
| ☐ PM2.5<br>☐ PM10  | Population Exposure   | □Neighborhood_   | □SPM   |
| ☐ PM10-2.5   | Source Oriented   | Urban  | □ NONREGULATORY                              |
| PM10 Lead (PB)   | Transport   | Regional   | <u> </u>                                     |
| ☐ PM2.5 Cont. (TEOM) ☐ PM2.5 Cont. (BAM)   |   |  |  |
| PM2.5 Spec. (SASS)   | Upwind Background   |  |  |
| PM2.5 Spec. (URG)  | Welfare Related Impacts   |  |  |
| PM2.5 Cont. Spec.  Probe inlet height (from gro  | ound)   | 7-15 m   | > 15 m                                       |
|  |   |  | > 2 2 V [] N- []                             |
|  | ontal (wall) and/or vertical (platform on<br>the normal and only other and only other |  |  |
| site = 1 m or greater?   |   |  | Yes No NA                                    |
| or greater?  | olume monitor inlets and any Hi-Volum   |  | Yes No NA                                    |
| TEOM, BAM & TEOM) Lo   | tors (Two FRMs, FRM & BAM, FRM<br>ocated at Site?                                     | *Yes 🗌 (ansv   | ver *'d questions) No 🗌 NA 🏾                 |
| *Distance between collocate  | ed PM 2.5 sampler inlets = 1 to 4 m?  |  | Give actual (meters)                         |
| *Are collocated PM2.5 sam  | pler inlets within 1 m vertically of eac  | h other? Yes No  | Give actual (meters)                         |
| * Distance between collocat  | llocated with a SASS monitor at the si<br>ted speciation sampler inlets = 1 to 4 to   | n? Yes ☐ No [  | questions) No 🗌 NA 🔲<br>Give actual (meters) |
| * Are collocated speciation  | sampler inlets within 1 m vertically of   | each other? Yes No   | Give actual (meters)                         |
| Is a low-volume PM10 mon<br>to measure PM10-2.5?   | itor collocated with a PM2.5 monitor  | at the site    *Yes   (ansv  | wer *'d questions) No 🗌 NA 🛚                 |
|  | ed PM10 and PM2.5 inlets for PM10-2   |  | Yes No No                                    |
|  | PM2.5 sampler inlets within 1 m vertice   |  | Yes No No                                    |
| a the growth of the contraction of the same of the sam | arest tree drip line? Yes - *No   |  |  |
| *Is probe > 10 m from the n<br>*Distance from probe to tre   | earest tree drip line if tree acts as an o  | bstruction? Yes *No<br>Direction from prol   |  |
| *Height of tree (m)  |   | - Was a State of the state of t | octotice                                     |
| Are there any obstacles to a   | ir flow? *Yes 🔲 (answer *'d question  | ıs) No 🗌   |  |
| *Identify obstacle Di  | stance from probe inlet (m)Di   | rection from probe inlet to o  | bstacle                                      |
| *Is distance from inlet probe Distance of probe to pearest   | e to obstacle at least twice the height the<br>traffic lane (m) Direction fr          | hat the obstacle protrudes ab  | ove the probe? Yes No                        |
| RECOMMENDATIONS:   | traffic tane (iii) Direction ii   | om probe to nearest traine i   | ane  |
|  | atus? Yes ⊠ *No □ (answer *'d   | (questions)  |  |
| 5  | ojective? Yes (enter new objective  | 1.7  | ) No 🗀-                                      |
|  | sentativeness? Yes [ (enter new s   | 11.00  | ) No [                                       |
| *4) Relocate site? Yes   |   | 3346   | 7.474  |
|  |   |  |  |
| Comments   |   |  |  |
| Reviewer Sandra Sherer   |   |  | DateJanuary 4, 2012                          |
| Ambiant Manitoring Coop  |   |  | DateJanuary 25, 2012                         |
| Amoretic Monitoring Cook   | dinatorD.W. Manning   |  | Date January 25, 2012                        |
| Revised 2012-01-27   | dinatorD.W. Manning   |  | Date January 25, 2012                        |

#### Site Information

| Region MRO Site Name Grier            |   | AQS Site # 37- 071 - 0016       |               |                                     |                     |  |
|---------------------------------------|---|---------------------------------|---------------|-------------------------------------|---------------------|--|
| Street Address- 162                   |   |                                 |               | City Gastonia                       |                     |  |
| Urban Area GASTO                      |   |                                 | atistical A   | rea Charlotte-C                     | Gastonia-           |  |
|                                       |   | Concord, NC-                    | SC            |                                     |                     |  |
|                                       | Enter Exact                                 |                                 |               |                                     |                     |  |
| Longitude W81.15                      | 1,000,000,000,000                           |                                 |               | Method of M                         |                     |  |
| In Decimal Degrees                    | CONT. 1000000 1 100000000000000000000000000 | al Degrees                      | GPS           | Explanation: <u>r</u>               | napping             |  |
| Elevation Above/below                 |   |                                 |               | 243                                 |                     |  |
| Name of nearest road to in            |   | Drive ADT 5900 Yea              | r <u>2010</u> |                                     |                     |  |
| Comments: Decreased fro               | 29 20 20 20 EXCHANGE                        |                                 | 10.00         | 14102                               |                     |  |
| Distance of site to nearest           |   | 하기 있는데 하는데 되는데 생각하는 그 그렇게 되었다.  | 0 10          | or road <u>S</u>                    |                     |  |
| Name of nearest major roa             |   | DT <u>19000</u> Year <u>201</u> | 0             |                                     |                     |  |
| Comments: Decreased fro               |   |                                 |               |                                     |                     |  |
| Site located near electrical          | substation/high voltage                     | e power lines?                  |               |                                     | Yes 🗌 No 🔯          |  |
| Distance of site to neare             | st railroad track                           | (m)                             | 2222          | _Direction to RR                    | W □NA               |  |
| Distance of site to neare             | st nower nole w/trans                       | sformer (m)                     | 148           | Direction E                         |                     |  |
| Distance between site and             |   |                                 |               |                                     | ⊠NA                 |  |
| Explain any sources of p              |   |                                 |               |                                     | s, railroad tracks, |  |
| construction activities, f            | ast food restaurants,                       | and swimming pools.             |               |                                     |                     |  |
|                                       |   |                                 |               |                                     |                     |  |
|                                       |   |                                 |               |                                     |                     |  |
| ANSWER ALL APPLI                      | CABLE QUESTIONS                             | S:                              |               |                                     |                     |  |
| Parameters                            | Monitoring O                                |                                 | Scale         |                                     | Site Type           |  |
| NA                                    | General/Backgro                             | and DM                          | cro           | □ST AN                              | IS                  |  |
| SO <sub>2</sub> (NAAQS)               | Highest Concent                             | 85.74/03/85 D02/03/09/          | \$411.A       | 170 - 210 0000 0000                 |                     |  |
| SO <sub>2</sub> (trace-level)         | Max O3 Concent                              | restion                         | ddle          | - P. P. (1971)                      |                     |  |
| NO <sub>x</sub> (NAAQS)               | Population Expo                             | sure   Ne                       | ighborhood_   |                                     |                     |  |
| □HSNO,                                | Source Oriented                             | Ur                              | ban           | SPM/C                               | OPN                 |  |
| □ O <sub>3</sub><br>□ NH <sub>3</sub> | Transport                                   |                                 | gional        | NONE                                | EGULATORY           |  |
| Hydrocarbon                           | Upwind Backgro                              |                                 |               |                                     |                     |  |
| Air Toxics                            | ☐Welfare Related                            | Impacts                         |               |                                     |                     |  |
| ☐ HSCO (Not Micro)                    | =   |                                 |               |                                     |                     |  |
| CO (trace-level)                      | l   |                                 |               |                                     |                     |  |
| Probe inlet height (from g            |   |                                 |               | 일시 경급이가 이 경기 (2007년 ) 경기 교육 (시간 100 | round (meters)      |  |
| Distance of probe inlet fro           |   |                                 |               | ture > 1 m? Yes                     | □ No □              |  |
| Actual measured distance              | 15 51 555                                   |                                 | -             | 1250                                |                     |  |
| Distance of probe inlet fro           |   |                                 | 813           |                                     | No NA               |  |
| Is probe > 20 m from the r            |   |                                 |               |                                     |                     |  |
| *Is probe > 10 m from the             | nearest tree drip line if                   | f tree acts as an obstruc       |               | □ *No □                             |                     |  |
| *Distance from probe to to            | ree (m)                                     |                                 | Direction     | from probe to tree                  | _                   |  |
| *Height of tree (m)                   |   |                                 | _             |                                     |                     |  |
| Are there any obstacles to            | air flow? *Yes [ ] (ans                     | swer *'d questions) No          |               |                                     |                     |  |
| *Identify obstacle I                  | Distance from probe inl                     | et (m)Direction                 | from probe    | inlet to obstacle _                 | _                   |  |
| *Is distance from inlet pro           | be to obstacle at least t                   | wice the height that the        | obstacle pro  | otrudes above the pr                | robe? Yes 🗌 No 🗌    |  |
| Distance of probe to neare            | st traffic lane (m)                         | Direction from pr               | obe to neare: | st traffic lane                     |                     |  |

| Parameters   | Monitoring Objective   | Scale   | Site Type  |
|--|--|---|--|
| ⊠ NA<br>□CO (Micro Only)   | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts  | Micro   | SLAMS SPM SPM/OPN NONREGULATORY  |
| Probe inlet height (from g<br>Actual measured distance   | The second secon |   | Yes No   |
|  | om horizontal (wall) and/or vertical (ro<br>from probe to supporting structure (m  |   | >1 m? Yes □ No □   |
| Distance of probe inlet to   | nearest intersection > 10 m? nearest traffic lane 2 - 10 m? nearest tree drip line? Yes *N   | lo □ (anewer *'d questio  | Yes No Yes No  |
| *Is probe > 10 m from the<br>*Distance from probe to to<br>*Height of tree (m)   | e nearest tree drip line if tree acts as ar<br>ree (m)   | obstruction? Yes Direction from   | *No 🗆  |
| *Identify obstacle l *Is distance from inlet pro   | Distance from probe inlet (m)<br>obe to obstacle at least twice the heigh  | Direction from probe inle   | des above the probe? Yes 🔲 No 🛭  |
| Distance of probe to neare   | est traffic lane (m)Direction f  | rom probe to nearest traff  | fic lane   |
|  |  |   |  |
| Parameters   | Monitoring Objective   | Scale   | Site Type  |
|  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background  | Scale    Micro   Middle   Neighborhood   Urban   Regional   | SLAMS NCORE SPM  |
| ⊠ NA<br>□ NO <sub>y</sub> (trace-level)  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts  | MicroMiddleNeighborhoodUrban  | SLAMS NCORE SPM SPM/OPN NONREGULATORY  |
| NA □ NO <sub>y</sub> (trace-level)  Probe inlet height (from g   | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts  | Micro Middle Neighborhood Urban Regional  | SLAMS NCORE SPM SPM/OPN  |
| NA NO <sub>y</sub> (trace-level)  Probe inlet height (from g Actual measured distance  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts round) 10-15 m?  | MicroMiddleNeighborhood   | SLAMS NCORE SPM SPM/OPN NONREGULATORY  |
| NA NO <sub>y</sub> (trace-level)  Probe inlet height (from g Actual measured distance Distance of probe inlet fro Actual measured distance   | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts round) 10-15 m? from probe inlet to ground (meters)  | MicroMiddleNeighborhoodRegional g structure > 1 m?  | SLAMS NCORE SPM SPM/OPN NONREGULATORY  Yes No  |
| NA NO <sub>y</sub> (trace-level)  Probe inlet height (from g Actual measured distance Distance of probe inlet fro Actual measured distance Distance of probe inlet fro Is probe > 20 m from the *Is probe > 10 m from the *Distance from probe to to                   | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts round) 10-15 m? from probe inlet to ground (meters) om horizontal and/or vertical supporting from probe to supporting structure (momentum of the monitoring probe inlets > 1 momentum of the monitoring of the monitoring probe inlets > 1 momentum of the monitoring  | Micro   Middle   Meighborhood   Wrban   Regional   Meighborhood   Meighborhood | SLAMS   NCORE   SPM   SPM_   SPM/OPN_   NONREGULATORY  Yes   No   Yes   No   NA   SPM/OPN   SPM/ |
| NA NO <sub>y</sub> (trace-level)  Probe inlet height (from g Actual measured distance Distance of probe inlet fro Actual measured distance Distance of probe inlet fro Is probe > 20 m from the Is probe > 10 m from the Tolstance from probe to to Height of tree (m) | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts round) 10-15 m? from probe inlet to ground (meters) om horizontal and/or vertical supporting from probe to supporting structure (momentum of the monitoring probe inlets > 1 momentum of the monitoring of the monitoring probe inlets > 1 momentum of the monitoring  | Micro Middle Neighborhood Urban Regional sq structure > 1 m? (answer *'d question obstruction? Yes Direction from   | SLAMS  |

| Parameters  | Monitoring Objective   | Scale  | Site Type                      |
|---|--|--|--------------------------------|
| NA<br>□NO₂ (Near Road only)<br>□CO (Near Road only) | Highest Concentration  Population Exposure  Source Oriented  Transport  Welfare Related Impacts    | Micro  | SLAMSSPMNONREGULATORY          |
| Probe inlet height (from grou                       | nd) 2-15 m? Yes No   | Give actual measured                         | height from ground (meters)    |
| Distance of probe inlet from I                      | norizontal (wall) and/or vertical (roc   | of) supporting structure >                   | 1 m? Yes ☐ No ☐                |
| Actual measured distance from                       | m probe to supporting structure (me  | ters)  |                                |
| Distance of probe inlet from o                      | other monitoring probe inlets > 1 m  | ,  | Yes No No NA                   |
| Is probe > 20 m from the near                       | rest tree drip line? Yes 🔲 *No   | (answer * d question                         | is)                            |
|   | arest tree drip line if tree acts as an o  |  |                                |
|   | flow? *Yes ☐ (answer *'d question  | ns) No 🗌                                     | 1                              |
| *Identify obstacle Dist                             | ance from probe inlet (m)Dire  | ection from probe inlet to                   | obstacle                       |
|   |  |  | es above the probe? Yes 🔲 No 🗍 |
| Distance of probe to nearest t                      | raffic lane (m) Direction f  | rom probe to nearest traf                    | fic lane                       |
| Parameters  | Monitoring Objective   | Scale  | Site Type                      |
| NA Air flow > 200 L/min □ PM10 □ TSP □ Pb           | Highest Concentration<br>Population Exposure<br>Source Oriented<br>Background<br>Transport         | Micro  Middle  Neighborhood  Urban  Regional | SLAMS  NCORE SPM               |
|   | nd) $\square < 2 \text{ m}$ $\square$ 2-7m $\square$<br>m probe inlet to ground (meters) $\square$ |  | > 15 m                         |
| Distance of inlet from horizon                      | ntal (wall) and/or vertical (platform<br>m probe to supporting structure (me                       | or roof) supporting struct                   | ture > 2 m? Yes No             |
| Distance between collocated                         | PM-10, TSP or Pb sampler inlets = :  |  | Yes 🗆 No 🗆 NA 🗀                |
|   | ween collocated probes (meters)  |  |                                |
|   | olume inlet and any other high or lov  | 12   | Ves II No II NA II             |
|   | rest tree drip line? Yes *No   |  |                                |
| [일일: 12] [1] 1 [ [ ] [ ] [ ] [ ] [ ] [ ] [ ] [      | S. 프로젝트 (1987년 ) [12] [12] [12] [12] [12] [12] [12] [12]   |  | 170 many                       |
| *Distance from probe to tree<br>*Height of tree (m) |  | Direction from                               | *No<br>probe to tree           |
| Are there any obstacles to air                      | flow? *Yes [ ] (answer *'d question  | ns) No 🗌                                     |                                |
|   | ance from probe inlet (m)Dire  |  |                                |
|   | to obstacle at least twice the height  |  |                                |
| Distance of probe to nearest t                      | raffic lane (m) Direction f  | rom probe to nearest traf                    | fic lane                       |

| Parameters  | Monitoring Objective   |   | Scale                  | Site Type  |
|---|--|---|------------------------|--|
| □NA   | General/Background   | □Mic                                    | го                     | SLAMS PM 2.5   |
| Air flow < 200 L/min  | Highest Concentration  | 1000                                    | ldle                   | NCORE  |
| PM2.5   |  | 100 30000                               | ghborhood              | □SPM   |
| ☐ PM10<br>☐ PM10-2.5  | □ Population Exposure  | 100000000000000000000000000000000000000 |                        | NONREGULATORY  |
| PM10 Lead (PB)  | Source Oriented  | 15,000,000,000                          | an                     | TEOM   |
| PM2.5 Cont. (TEOM)  | Transport  |   | ional                  |  |
| ☐ PM2.5 Cont. (BAM) ☐ PM2.5 Spec. (SASS)                    | Upwind Background  |   |                        |  |
| PM2.5 Spec. (URG)   | Welfare Related Impacts  |   |                        |  |
| PM2.5 Cont. Spec.   |  |   |                        |  |
| Probe inlet height (from gro<br>Actual measured distance fr | und) 🗌 < 2 m 🔲 2-7m _<br>om probe inlet to ground (meters) <u>TE</u>   | □ 7-<br>OM is 2.2m                      | 15 m<br>FRM is 2.2m    | > 15 m   |
|   | ontal (wall) and/or vertical (platform o   |   |                        | m? Yes ⊠ No □  |
| Distance between inlets of a<br>site = 1 m or greater?      | ny low volume monitor and any other  | low volume                              | e monitor at the       | Yes ⊠ No □ NA □  |
|   | lume monitor inlets and any Hi-Volun   | ne PM-10 o                              | r TSP inlet = 2 m      |  |
| or greater?   |  |   |                        | Yes No NA  |
| Are collocated PM2.5 Moni<br>TEOM, BAM & TEOM) Lo           | tors (Two FRMs, FRM & BAM, FRM<br>cated at Site?   | 1&                                      | 7000                   | *'d questions) No 🗌 NA 🗌                               |
|   | ed PM 2.5 sampler inlets = 1 to 4 m?<br>pler inlets within 1 m vertically of eac   | h other?                                |                        | Give actual (meters) 2.7m<br>Give actual (meters) 0.0m |
| * Distance between collocat                                 | llocated with a SASS monitor at the si<br>ed speciation sampler inlets = 1 to 4 r<br>sampler inlets within 1 m vertically of | n?                                      | Yes No                 | stions) No NA S<br>Give actual (meters)                |
| Is a low-volume PM10 mon<br>to measure PM10-2.5?            | itor collocated with a PM2.5 monitor   | at the site                             | *Yes ☐ (answer         | e'd questions) No ☐ NA 🗵                               |
|   | ed PM10 and PM2.5 inlets for PM10-2<br>PM2.5 sampler inlets within 1 m vertic  |   |                        | s No               |
|   | arest tree drip line? Yes 🛛 *No  |   |                        |  |
| *Distance from probe to tree                                | earest tree drip line if tree acts as an o   |   |                        | o tree   |
| *Height of tree (m)<br>Are there any obstacles to a         | ir flow? *Yes [ ] (answer *'d question   | s) No 🖂                                 |                        |  |
| 3   | stance from probe inlet (m)Dir   | AL                                      | s proba inlat to obete | vola   |
| *Is distance from inlet probe                               | e to obstacle at least twice the height the<br>traffic lane (m) 145 Direction from   | nat the obsta                           | acle protrudes above   | the probe? Yes No                                      |
| RECOMMENDATIONS:  |  |   |                        |  |
| Maintain current site sta                                   | atus? Yes ☐ "No ☒ (answer "'d  | questions)                              |                        |  |
| 5.  | jective? Yes ☐ (enter new objective  | 1.00                                    |                        | ) No ⊠-  |
| *3) Change scale of repres                                  | sentativeness? Yes 🛛 (enter new se   | cale Urb                                | oan                    | ) No 🗆   |
| *4) Relocate site? Yes [                                    | □ No⊠  |   |                        |  |
| Comments:   |  |   |                        |  |
| Reviewer Sandra Sherer                                      |  |   | D                      | PateJanuary 5, 2012                                    |
| Ambient Monitoring Coord                                    | dinator D.W. Manning   |   | Da                     | teJanuary 27, 2012                                     |
|   | animotor _D, w. primining  |   | Da                     | regularity 27, 2012                                    |
| Revised 2012-01-30  |  |   |                        |  |
|   |  |   |                        |  |

GRIER SITE REVIEW 2011.DOCX Joette Steger

#### Site Information

| Region_MRO Site Name Monroe Middle School  |  | lle   | AQS Site # 37- <u>179</u> - <u>0003</u>                  |   |                                       |                    |  |
|--|--|---|--|---|---------------------------------------|--------------------|--|
| Street Address   | 701 C  | Charles Street  | - (  | City Monroe, NC   |                                       |                    |  |
| Urban Area MON   | ROE  | Core-based Sta  |  |   | lotte-Gastonia-                       | Concord, NC-SC     |  |
| E  | nter   | Exact   | 1  | M   | ethod of Measu                        | ring               |  |
| In Decimal Degrees   | 110_   | Latitude N34.9738 In Decimal Degrees  | Othe   | Other (explain) Explanation: Laptop Compute with GPS USB attachment and DeLorme Street Atlas Software |                                       |                    |  |
| Floration Aborrofolou  | Elevation Above/below Mean Sea Level (in meters)     |   |  |   | 179.5                                 | eet Atlas Software |  |
|  |  | obe Charles St  | reet   | - 3   | ADT 3,500 Year                        | 2009               |  |
| Distance of site to nearest<br>Name of nearest major ro  | majo<br>ad _   | r road (m) 1650.00 Direction<br>Highway 74/601<br>cdot.gov/travel/statemapping/   | from site  | to nearest maj<br>_ADT _45,00   | orroad ENE                            | 10 data.           |  |
| Site located near electrica  | l subs   | tation/high voltage power line:   | s?   |   |                                       | Yes ☐ No 🏻         |  |
| Distance of site to near   |  | lroad track<br>wer pole w/transformer   | (m) <u>10</u><br>(m) <u>34</u>                           |   | rection to RR N                       | □NA                |  |
| Distance between site and  | drip !   | line of water tower (m)<br>tial bias; include cultivated  | Directio   | on from site to   | water tower                           | ⊠NA                |  |
| ANSWER ALL APPL<br>Parameters  | everación de   |   |  | Scale   |                                       | Site Type          |  |
| NA   SO₂ (NAAQS)   SO₂ (trace-level)   NO₄ (NAAQS)   HSNO₂   NH₃   Hydrocarbon   Air Toxics   HSCO (Not Micro)   CO (trace-level)  |  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts |  | licro<br>liddle<br>eighborhood_<br>rban<br>egional  | □NCOR<br>□SPM_<br>□SPM/C              |                    |  |
| Probe inlet height (from a Distance of probe inlet from Actual measured distance Distance of probe inlet from Is probe > 20 m from the "Is probe > 10 m from the "Distance from probe to "Height of tree (m) | om ho<br>from<br>om ot<br>neare<br>e near<br>tree (n |   | (roof) sup<br>(meters)<br>  m?<br> 'No   (a<br>an obstru | porting structu<br>1_<br>nswer **d que<br>ction? Yes [<br>_ Direction )                               | ure > 1 m? Yes [<br>Yes [<br>estions) | □ No□NA⊠           |  |
| *Identify obstacle<br>*Is distance from inlet pr   | Distar   | ow? *Yes (answer *'d que<br>nce from probe inlet (m)<br>obstacle at least twice the hei<br>ffic lane (m) 71.3 Direction                               | _Direction   | on from probe<br>e obstacle pro   | trudes above the pr                   | obe? Yes No        |  |

MONROE SITE REVIEW 2011, DOCX

| Parameters   | Monitoring Objective  | Scale  | Site Type  |
|--|---|--|--|
| ⊠ NA<br>□CO (Micro Only)   | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro  | □SLAMS<br>□SPM_<br>□SPM/OPN<br>□NONREGULATORY  |
| Distance of probe inlet from   | round) 2.5 - 3.5 m?  from probe inlet to ground (meters)  m horizontal (wall) and/or vertical (ro  from probe to supporting structure (m              | of) supporting structure   | Yes  |
| Distance of probe inlet to a<br>Is probe > 20 m from the n                                       | nearest intersection > 10 m? nearest traffic lane 2 - 10 m? nearest tree drip line? Yes \( \text{ *No} \) nearest tree drip line if tree acts as an   | No.  |  |
| *Height of tree (m)Are there any obstacles to  *Identify obstacle I  *Is distance from inlet pro | ee (m)air flow? *Yes (answer *'d question  Distance from probe inlet (m)I  be to obstacle at least twice the height  st traffic lane (m)Direction fr  | ons) No   Direction from probe inle  | t to obstacle<br>les above the probe? Yes No   |
| Distance of probe to hear  | st trattic laise (iii)Direction ii  |  | 74 July 100 May 100 Ma |
| Parameters   | Monitoring Objective  | Scale  | Site Type  |
| NA<br>□ NO <sub>y</sub> (trace-level)  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts | MicroMiddleNeighborhoodUrbanRegional   | □ NCORE  |
| Probe inlet height (from gr<br>Actual measured distance  |   | _  | Yes No   |
|  | m horizontal and/or vertical supportin<br>from probe to supporting structure (m   | - note in a construction of the construction o | Yes No   |
| Distance of probe inlet fro  | m other monitoring probe inlets > 1 m   | ?  | Yes No NA  |
|  | nearest tree drip line? Yes = *Ne<br>nearest tree drip line if tree acts as an<br>ee (m)  | obstruction? Yes   |  |
| Are there any obstacles to   | air flow? *Yes (answer *'d question) Distance from probe inlet (m)I be to obstacle at least twice the height st traffic lane (m) Direction            | Direction from probe inle  | les above the probe? Yes 🗌 No 🗍  |
| - maire of Prove to Heme   | 2007  | The second secon |  |

| Parameters   | Monitoring Objective  | Scale                                  | Site Type                     |
|--|---|--|-------------------------------|
| NA  NO₂ (Near Road only)  CO (Near Road only)      | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro                                  | SLAMS SPM NONREGULATORY       |
| Probe inlet height (from groun                     | nd) 2-15 m? Yes No  | Give actual measured h                 | neight from ground (meters)   |
| Distance of probe inlet from h                     | orizontal (wall) and/or vertical (roo   | of) supporting structure >             | lm? Yes No                    |
| Actual measured distance from                      | n probe to supporting structure (me   | eters)                                 |                               |
|  | ther monitoring probe inlets > 1 m  | (photes)                               | Yes No NA NA                  |
| Is probe > 20 m from the near                      | est tree drip line? Yes 🗌 *No   | (answer *'d questions                  | )                             |
| *Distance from probe to tree ( *Height of tree (m) | M20-  | Direction from p                       |                               |
| Are there any obstacles to air                     | flow? *Yes 🗌 (answer *'d questio  | ons) No 🗌                              |                               |
| *Identify obstacle Dist                            | ance from probe inlet (m)Dir  | ection from probe inlet to             | obstacle                      |
|  |   |  | above the probe? Yes No       |
|  | raffic lane (m) Direction i   |  |                               |
|  | CONTRACTOR OF THE STATE OF THE |  | 56 80 80 0 0 0                |
| Parameters   | Monitoring Objective  | Scale                                  | Site Type                     |
| Air flow > 200 L/min  ☐ PM10 ☐ TSP ☐ Pb            | Highest Concentration Population Exposure Source Oriented Background Transport Welfare Related Impacts  | MicroMiddle                            | SLAMS NCORE SPM NONREGULATORY |
| Probe inlet height (from group                     | nd)   | □.7-15 m                               | > 15 m                        |
|  | 47일 :   |  |                               |
| Actual measured distance from                      | n probe inlet to ground (meters)  | <del></del>                            |                               |
| Distance of inlet from horizon                     | atal (wall) and/or vertical (platform   | or roof) supporting structu            | ire > 2 m? Yes ☐ No ☐         |
| Actual measured distance from                      | n probe to supporting structure (me   | eters)                                 |                               |
|  |   |  |                               |
| Distance between collocated I                      | PM-10, TSP or Pb sampler inlets =   | 2 to 4 m?                              | es No NA                      |
| Actual measured distance bet                       | ween collocated probes (meters) _   | _                                      |                               |
| Distance between any high vo                       | lume inlet and any other high or lo   | w volume inlet ≥2 m? Y                 | res 🗌 No 🗎 NA 🔲               |
|  | est tree drip line? Yes 🔲 *No   |  |                               |
|  |   |  |                               |
| *Distance from probe to tree ( *Height of tree (m) | rest tree drip line if tree acts as an (m)  | obstruction? Yes [] * Direction from p | 72.171 <del>3.5.1.1</del> 3   |
|  | flow? *Yes 🗌 (answer *'d questio  | ons) No 🗌                              |                               |
| *Identify obstacle Dist                            | ance from probe inlet (m)Dire   | ection from probe inlet to             | obstacle                      |
|  | o obstacle at least twice the height  |  |                               |
| Distance of probe to nearest to                    |   | from probe to nearest traff            |                               |

| Parameters   | Monitoring Objective   | Scale   | Site Type  |
|--|--|---|--|
| NA   | General/Background   | Micro   | SLAMS  |
| Air flow < 200 L/min                                   | Highest Concentration  | Middle  | NCORE  |
| ☐ PM2.5<br>☐ PM10                                      | Population Exposure  | Neighborhood  | □SPM   |
| PM10-2.5   | Source Oriented  | Urban   | NONREGULATORY  |
| PM10 Lead (PB)   | Carried Control of Con | Regional  | <u> </u>   |
| PM2.5 Cont. (TEOM)                                     | Transport  |   |  |
| ☐ PM2.5 Cont. (BAM)<br>☐ PM2.5 Spec. (SASS)            | Upwind Background  |   |  |
| PM2.5 Spec. (URG)                                      | Welfare Related Impacts  |   |  |
| PM2.5 Cont. Spec.                                      |  |   |  |
| Actual measured distance fr                            | und)   | =   | > 15 m   |
|  | ontal (wall) and/or vertical (platform o   |   | m? Yes No  |
| Distance between inlets of a<br>site = 1 m or greater? | ny low volume monitor and any other  | low volume monitor at the   | Yes No NA NA   |
|  | lume monitor inlets and any Hi-Volun   | ne PM-10 or TSP inlet = 2 m   | Yes No NA  |
| or greater?  |  |   | ICS NO NA  |
| TEOM, BAM & TEOM) Lo                                   | tors (Two FRMs, FRM & BAM, FRM<br>scated at Site?  | *Yes 🗌 (answer  | *'d questions) No 🗌 NA 🗌   |
| *Distance between collocate                            | ed PM 2.5 sampler inlets = 1 to 4 m?   |   | Give actual (meters)   |
| *Are collocated PM2.5 sam                              | pler inlets within 1 m vertically of eac   | h other? Yes No 📗   | Give actual (meters)   |
|  | llocated with a SASS monitor at the si   |   |  |
|  | ed speciation sampler inlets = 1 to 4 n<br>sampler inlets within 1 m vertically of   |   | Give actual (meters)   |
|  |  |   | 1220 R   |
| to measure PM10-2.5?                                   | itor collocated with a PM2.5 monitor a   |   | *'d questions) No 🗌 NA 🗌   |
|  | ed PM10 and PM2.5 inlets for PM10-2  |   | s No No  |
|  | PM2.5 sampler inlets within 1 m vertice<br>arest tree drip line? Yes *No   |   | es 🗌 No 🗌  |
| en til generalli annansanan vassi var mellan se        | earest tree drip line if tree acts as an o   |   |  |
| *Distance from probe to tree                           | e (m)  | Direction from probe  | to tree  |
| *Height of tree (m)                                    | NAME OF TAXABLE PARTY.   | West State of   |  |
| Are there any obstacles to a                           | ir flow? *Yes [ ] (answer *'d question   | s) No 🔲   |  |
| *Identify obstacle Di                                  | stance from probe inlet (m)Dir   | rection from probe inlet to obst  | acle   |
| Distance of probe to nearest                           | e to obstacle at least twice the height the<br>traffic lane (m) Direction fr   | nat the obstacle protrudes above<br>om probe to nearest traffic land  | e the probe? Yes No  |
| RECOMMENDATIONS:                                       |  | on process makes make and   | _  |
|  | atus? Yes ⊠ "No □ (answer "'d  | questions)  |  |
|  | jective? Yes ☐ (enter new objective  |   | _) No □-   |
|  | sentativeness? Yes [ (enter new se   |   | ) No 🗆   |
| *4) Relocate site? Yes [                               |  | NATION CONTRACTOR OF THE PARTY |  |
|  |  |   |  |
| Comments:  |  |   | <u> </u>   |
| Reviewer Paul Chappin                                  |  | Date  | December 20, 2011  |
| Ambient Monitoring Coord                               | dinator D. W. Manning  | D   | ateJanuary 25, 2012  |
| Revised 2012-01-30                                     |  |   |  |
|  |  |   |  |
|  |  |   |  |
| WAGGIN TRAIL   | SITE REVIEW 2011.DOCX  | Joette Steger   | epully colorings<br>colorings, a board transactions coloring conditional school, 4 |

#### Site Information

| Region MRO Site Name Enochville                              |                                    |   | AQS Site # 37- 159 - 0022  |  |                    |   |  |
|--|------------------------------------|---|--|--|--------------------|---|--|
| Street Add   | lress <u>- 925 N</u>               | orth Enochville Ave   |  | City   | City Enochville    |   |  |
| Urban Area   | Not in an                          | Urban Area  | Core-based   | Statistical .  | Area Salisbur      | y, NC                                     |  |
|  |                                    | Enter Exact   |  |  | CONTRACTOR OF THE  | 500 Sept. 170                             |  |
| Longitude  | W 80.66759                         | Latitude  | N 35.53449   |  | Method of          | Measuring                                 |  |
|  | Decimal Degrees In Decimal Degrees |   |  | GPS  | Explanation        |   |  |
|  |                                    | ean Sea Level (în me  |  |  |                    | 64  |  |
| Comments:<br>Distance of site<br>Name of neares<br>Comments: | to nearest ma<br>st major road     | jor road (m) <u>180</u> Dire<br>North Enochville Ave.   | ction from site<br>ADT 7500 Y  | o nearest majo                                       |                    |   |  |
| Site located nea   | ar electrical su                   | bstation/high voltage po  | ower lines?  |  |                    | Yes 🛛 No 🗌                                |  |
| Distance of si   |                                    | railroad track<br>power pole w/transfo  | rmer   | (m) <u>4800</u><br>(m) <u>23</u> Direc               |                    | A.S VALVOUR                               |  |
|  |                                    | p line of water tower (n<br>ential bias; include cu   |  |  | to water tower     | ⊠NA                                       |  |
| High volta   | ge power 1                         | food restaurants, and<br>lines 143.5 m to<br>ABLE QUESTIONS:  | north.   | S000000  |                    |   |  |
| Parame   | ters                               | Monitoring Obje   | ctive  | Scale  |                    | Site Type                                 |  |
| NA   | rbon<br>cs Vict Micro)             | General/Background Highest Concentrati Max O3 Concentrati Population Exposur Source Oriented Transport Upwind Background Welfare Related Im | con   [  | Micro<br>Middle<br>Neighborhood<br>Urban<br>Regional | i   NC             | AMS<br>PORE<br>M<br>M'OPN<br>DNREGULATORY |  |
| Probe inlet hei  | ght (from grou                     | ınd) 2-15 m? Yes ⊠  | No 🗌   | Give actual me                                       | asured height from | m ground (meters) 3.67                    |  |
|  |                                    | horizontal (wall) and/or  |  |  | cture > 1 m? Y     | es 🛛 No 🗌                                 |  |
|  |                                    | m probe to supporting   | The state of the s | s) <u>1.05</u>                                       |                    |   |  |
| Le probe > 20 p  | n from the pac                     | other monitoring probe<br>rest tree drip line? Y  | inlets > 1 m?  | (anewar *'d a  |                    | es No NA                                  |  |
|  | m from the ne<br>probe to tree     | arest tree drip line if tre   |  | truction? Ye   |                    | see                                       |  |
| Are there any o  | obstacles to air                   | flow? *Yes [] (answe  | r *'d questions'   | No 🛛   |                    |   |  |
| *Identify obsta  | cle Dis                            | tance from probe inlet (  | m)Dire   | ction from prol                                      |                    | e probe? Yes □ No □                       |  |
|  |                                    | traffic lane (m) 31 D   |  |  |                    | e probe: res   No                         |  |
| _ and see of pre   | in inclined                        | (III) 21 D  | a valous a van pi  | - Se ve Heli ou                                      | <u> </u>           |   |  |

| Parameters   | Monitoring Objective  | Scale   | Site Type                             |
|--|---|---|---------------------------------------|
| NA<br>□CO (Micro Only)   | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro   | SLAMS SPM SPM/OPN NONREGULATORY       |
| Probe inlet height (from gr<br>Actual measured distance  | round) 2.5 - 3.5 m?<br>from probe inlet to ground (meters) _  |   | Yes No                                |
|  | m horizontal (wall) and/or vertical (roo<br>from probe to supporting structure (me  |   | m? Yes No                             |
| Distance of probe inlet to   | nearest intersection > 10 m?<br>nearest traffic lane 2 - 10 m?  |   | Yes No Yes No                         |
| *Is probe > 10 m from the *Distance from probe to tr *Height of tree (m) Are there any obstacles to *Identify obstacle I   | nearest tree drip line? Yes *No<br>nearest tree drip line if tree acts as an<br>ee (m)<br>air flow? *Yes (answer *'d questic<br>Distance from probe inlet (m) D<br>be to obstacle at least twice the height | obstruction? Yes = *N Direction from properties) No = | o obstacle                            |
|  | st traffic lane (m)Direction fro  |   |                                       |
| Parameters   | Monitoring Objective  | Scale   | Site Type                             |
| ⊠ NA<br>□ NO <sub>y</sub> (trace-level)  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts   | Micro Middle Neighborhood Urban Regional              | SLAMS NCORE SPM SPM/OPN NONREGULATORY |
| Probe inlet height (from gr  | round) 10-15 m?   |   | es No                                 |
| Actual measured distance   | from probe inlet to ground (meters)   | <del></del>   |                                       |
| The state of the s | m horizontal and/or vertical supporting<br>from probe to supporting structure (mo   | e accompany and a second                              | es No No                              |
| Distance of probe inlet fro  | m other monitoring probe inlets > 1 m   | ? Y   | es No NA                              |
| *Is probe > 10 m from the<br>*Distance from probe to tr  | nearest tree drip line? Yes = *No<br>nearest tree drip line if tree acts as an<br>ee (m)  |   | lo 🗌                                  |
| *Identify obstacle I   | air flow? *Yes [ (answer *'d questic Distance from probe inlet (m)  | virection from probe inlet to                         | above the probe? Yes 🗌 No 🗌           |

| Parameters   | Monitoring Objective  | Scale  | Site Type                                  |
|--|---|--|--|
| NA □NO₂ (Near Road only) □CO (Near Road only)  | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro  | SLAMS SPM NONREGULATORY                    |
| Distance of probe inlet from he<br>Actual measured distance from                             | d) 2-15 m? Yes No norizontal (wall) and/or vertical (room probe to supporting structure (mether monitoring probe inlets > 1 m?                | of) supporting structure ><br>ters)  | height from ground (meters)     1 m?   Yes |
| *Is probe > 10 m from the nea  | est tree drip line? Yes **No<br>rest tree drip line if tree acts as an <<br>m)  | obstruction? Yes 🗌 *   | No 🗆                                       |
| Are there any obstacles to air f  *Identify obstacle Dista  *Is distance from inlet probe to | low? *Yes (answer *'d question<br>ince from probe inlet (m) (Direc-<br>tion obstacle at least twice the height<br>affic lane (m) (Direction f | ection from probe inlet to<br>that the obstacle protrude   | s above the probe? Yes 🗌 No 🗌              |
| Parameters   | Monitoring Objective  | Scale  | Site Type                                  |
| Air flow > 200 L/min   | Highest Concentration  Population Exposure  Source Oriented  Background  I ransport  Welfare Related Impacts                                  | Micro Middle Neighborhood Urban Regional   | SLAMS NCORE SPM NONREGULATORY              |
|  | d)  | The state of the contract of t | □ > 15 m                                   |
|  | tal (wall) and/or vertical (platform<br>probe to supporting structure (me   |  |  |
| Actual measured distance betw  | M-10, TSP or Pb sampler inlets = :<br>veen collocated probes (meters)<br>tume inlet and any other high or lov                                 | 2 to 4 m?  | Yes No NA                                  |
| Is probe > 20 m from the neare   | est tree drip line? Yes 🔲 *No   | (answer *'d question   | s)   |
| *Distance from probe to tree (i<br>*Height of tree (m)                                       | 20 C  | Direction from   | *No  probe to tree                         |
| *Identify obstacle Dista   |   | ection from probe inlet to   | s above the probe? Yes 🔲 No 🔲              |

| Parameters  | Monitoring Objective   | Scale   | Site Type  |
|---|--|---|--|
| NA  Air flow < 200 L/min  □ PM2.5  □ PM10  □ PM10-2.5  □ PM10 Lead (PB)  □ PM2.5 Cont. (TEOM)  □ PM2.5 Cont. (BAM)  □ PM2.5 Spec. (SASS)  □ PM2.5 Spec. (URG)  □ PM2.5 Cont. Spec.  | General/Background Highest Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts   | MicroMiddleNeighborhoodUrban  | SLAMS  |
| Actual measured distance from Distance of inlet from horizon Distance between inlets of a site = 1 m or greater?  | und) <pre>2 m 2-7m om probe inlet to ground (meters) ontal (wall) and/or vertical (platform only low volume monitor and any other lume monitor inlets and any Hi-Volume</pre>  | r rcof) supporting structure<br>low volume monitor at the   | Yes No NA  |
| Are collocated PM2.5 Monit<br>TEOM, BAM & TEOM) Lo<br>*Distance between collocate   | tors (Two FRMs, FRM & BAM, FRM<br>cated at Site?<br>d PM 2.5 sampler inlets = 1 to 4 m?<br>oler inlets within 1 m vertically of eac  | Yes No  | swer *'d questions) No NA Give actual (meters)   |
| * Are collocated speciation s Is a low-volume PM10 monto measure PM10-2.5?  *Distance between collocate *Are collocated PM10 and F Is probe > 20 m from the new  *Is probe > 10 m from the new  *Distance from probe to tree  *Height of tree (m) | ed speciation sampler inlets = 1 to 4 mampler inlets within 1 m vertically of iter collocated with a PM2.5 monitor and PM10 and PM2.5 inlets for PM10-2 PM2.5 sampler inlets within 1 m vertically areast tree drip line? Yes *No example areast tree drip line if tree acts as an of the inlets? Yes (m) (answer *d question areast tree drip line).  | each other? Yes No at the site *Yes (ans 2.5 samplers = 1 to 4 m? ally of each other? (answer *'d questions) bstruction? Yes *No Direction from pro |  |
| *Is distance from inlet probe Distance of probe to nearest RECOMMENDATIONS:  1) Maintain current site sts *2) Change monitoring ob *3) Change scale of repres *4) Relocate site? Yes [  | stance from probe inlet (m) Direction for to obstacle at least twice the height the traffic lane (m) Direction for the probability of the probability o | nat the obstacle protrudes a<br>om probe to nearest traffic<br>questions)   | bove the probe? Yes No   |
| Comments  |  |   | 4000 4000 000 4004   |
| Reviewer Sandra Sherer  Ambient Monitoring Coord  | linator D. W. Monning  |   | Date January 4, 2012 Date January 25, 2012   |
| Revised 2012-01-30  |  | ette Steger   | EVELOCATION OF A STATE |

#### Site Information

| Region_MRO Site Name Rockwell  |                                       | AQS Site # 37-159-0021   |  |  |  |
|--------------------------------|---------------------------------------|--|--|--|--|
| Street Address-31              | 6 West Street                         | 0000190019004  | CityRockwell   |  |  |
| Urban Area Not in              | an Urban Area                         | Core-based Sta   |  |  |  |
|                                | Enter Exact                           |  | 0  |  |  |
| Longitude W 80                 | 0.3952 Latitu                         | de <u>N 35.5519</u>  | Me   | ethod of Measuring   |  |
| In Decimal Degrees             | In Decir                              | nal Degrees  |  | anation: Mapping   |  |
| Elevation Above/belov          | v Mean Sea Level (îr                  | meters)  |  | 222  |  |
| Name of nearest road to        | nlet probe Gold Hill I                | Road   | AD1  | Year   |  |
| Comments: City Mainta          | ned Street. No Traffic                | Count.   |  |  |  |
| Distance of site to neares     | t major road (m) 483.0                | 00 Direction from site to  | nearest major road   | d <u>SW</u>  |  |
| Name of nearest major ro       | oad Highway 52 ADT                    | 12000 Year 2010  |  |  |  |
| Comments:                      | R8001 NS - 84                         | _  |  |  |  |
| Site located near electric     | al substation/high voltag             | ge power lines?  |  | Yes □ No 🏻   |  |
|                                | TANAL CANAGE AND AGENCY AND ASSESSED. | E  | 12415;   | nn eur 🗀 ra  |  |
| Distance of site to near       | est ratiroad track                    | (m)  | 737Direction to  | RR SW NA   |  |
| Distance of site to near       |                                       |  | 39 Direction N   |  |  |
| Distance between site an       |                                       |  | from site to water   |  |  |
|                                |                                       |  | se bulk storage,   | stacks, vents, railroad tracks,  |  |
| construction activities,       | tast food restaurants,                | and swimming pools.  |  |  |  |
|                                |                                       |  |  |  |  |
| ANSWER ALL APPI                | ICABLE OUESTION                       | IS:  |  |  |  |
| Parameters                     | Monitoring (                          |  | Scale  | Site Type  |  |
| □NA                            | General/Backgr                        | aumd DMia  | ro   | □SLAMS   |  |
| SO <sub>2</sub> (NAAQS)        | Highest Concern                       | 200 A CONTRACT TO THE RESERVE OF THE | Street, Street |  |  |
| SO <sub>2</sub> (trace-level)  | Max O3 Concer                         | stration   | dle  | NCORE  |  |
| ☐ NO. (NAAQS)<br>⊠HSNO.        | HSNOy, HSCO, H                        | YMI OCAL DOTI  | hborhood   | SPM  |  |
| ⊠O <sub>3</sub>                | Population Exp                        |  | an <u>HSNOv.</u>   | SPM/OPN_O3.  |  |
| ☐ NH <sub>3</sub>              | Source Oriented                       | HSCO   | Hydrocarbon,   | NONREGULATORY  |  |
|                                | Upwind Backgr                         | ound O3.   | And the second   | _HSNOy, HSCO,  |  |
| ☐ Air Toxics ☐ HSCO (Not Micro | Walfore Dalotes                       |  | ional  | Hydrocarbon,   |  |
| CO (trace-level)               |                                       | 1.00000000   |  |  |  |
| Probe inlet height (from       | ground) 2-15 m? Yes                   | No ☐ Give  | actual measured  | height from ground (meters)  |  |
| HSNOy is 5.0m, O3 is 3         |                                       |  |  |  |  |
|                                |                                       |  |  | 1 m? Yes⊠ No□  |  |
|                                |                                       | ing structure (meters) 1.  |  | 100.000 200.000 200.000 200.000 200.000 200.000 200.000 200.000 200.000 200.000 200.000 200.000 200.000 200.00 |  |
| Distance of probe inlet f      |                                       |  | W-1 .  | Yes No NA  |  |
|                                |                                       | Yes ☐ *No ☒ (ans   |  |  |  |
|                                |                                       | if tree acts as an obstructi   |  | No 🗌   |  |
|                                |                                       | on from probe to tree ES   | E  |  |  |
| *Height of tree (m) 19.9       |                                       |  | 3  |  |  |
| Are there any obstacles t      | o air flow? *Yes [] (ai               | nswer *'d questions) No [  | ×  |  |  |
| *Identify obstacle             | Distance from probe in                | ilet (m)Direction  | from probe inlet   | to obstacle  |  |
|                                |                                       |  |  | s above the probe? Yes 🔲 No 🗌  |  |
| Distance of probe to nea       | rest traffic lane (m) 17              | Direction from probe t   | o nearest traffic l  | ane N  |  |

| Parameters   | Monitoring Objective  | Scale                                    | Site Type                       |
|--|---|--|---------------------------------|
| ⊠ NA<br>□CO (Micro Only)   | Highest ConcentrationPopulation Exposure Source OrientedTransportWelfare Related Impacts  | □Micro                                   | SLAMS SPM SPM/OPN NONREGULATORY |
| Probe inlet height (from gr<br>Actual measured distance  | round) 2.5 - 3.5 m?<br>from probe inlet to ground (meters) _  | _  | Yes No                          |
|  | m horizontal (wall) and/or vertical (ro<br>from probe to supporting structure (m  |  | >1 m? Yes No                    |
| Distance of probe inlet to   | nearest intersection > 10 m? nearest traffic lane 2 - 10 m? nearest tree drip line? Yes #N  | o (answer *'d questio                    | Yes                             |
| *Is probe > 10 m from the<br>*Distance from probe to tr<br>*Height of tree (m)<br>Are there any obstacles to | nearest tree drip line if tree acts as an ee (m)air flow? *Yes _ (answer *'d questi   | obstruction? Yes Direction from ons) No  | *No<br>n probe to tree          |
| *Is distance from inlet pro  | Distance from probe inlet (m)I be to obstacle at least twice the height st traffic lane (m) Direction fr  | that the obstacle protruc                | des above the probe? Yes 🔲 No 🗍 |
| Parameters   | Monitoring Objective  | Scale                                    | Site Type                       |
| ⊠ NA<br>□ NO <sub>y</sub> (trace-level)  | General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts | Micro Middle Neighborhood Urban Regional | NCORE                           |
| Probe inlet height (from gr<br>Actual measured distance  | round) 10-15 m?<br>from probe inlet to ground (meters) _  |  | Yes No                          |
|  | m horizontal and/or vertical supportin<br>from probe to supporting structure (m   |  | Yes No                          |
| Distance of probe inlet fro  | m other monitoring probe inlets > 1 m   | 1?                                       | Yes No NA                       |
|  | nearest tree drip line? Yes #N nearest tree drip line if tree acts as an tree (m)   | obstruction? Yes                         |                                 |
| Are there any obstacles to *Identify obstacle I  | air flow? *Yes (answer *'d questi<br>Distance from probe inlet (m)I<br>be to obstacle at least twice the height<br>st traffic lane (m) Direction      | Direction from probe inle                | des above the probe? Yes 🔲 No 🔲 |

| Parameters   | Monitoring Objective  | Scale   | Site Type   |
|--|---|---|---|
| ☑ NA<br>□NO₂ (Near Road only)<br>□CO (Near Road only)                                    | Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts   | Micro   | SLAMS SPM NONREGULATORY                           |
| Distance of probe inlet from he<br>Actual measured distance from                         | d) 2-15 m? Yes No not not not not not not not not not no  | of) supporting structure > ters)                          | height from ground (meters)<br>1 m? Yes  No No NA |
| *Is probe > 10 m from the near<br>*Distance from probe to tree (r<br>*Height of tree (m) | st tree drip line? Yes **No<br>rest tree drip line if tree acts as an o<br>n)   | obstruction? Yes : * Direction from p                     | No 🗆  |
| *Identify obstacle Dista *Is distance from inlet probe to                                | low? *Yes (answer *'d question<br>nee from probe inlet (m)Dire<br>obstacle at least twice the height to<br>offic lane (m) Direction for | ection from probe inlet to<br>that the obstacle protrudes | s above the probe? Yes 🔲 No 🗌                     |
| Parameters   | Monitoring Objective  | Scale   | Site Type   |
| Air flow > 200 L/min   | Highest Concentration Population Exposure Source Oriented Background Transport Velfare Related Impacts                                  | Micro Middle Neighborhood Urban Regional                  | SLAMS NCORE SPM NONREGULATORY                     |
|  | d)  |   | □ > 15 m  |
|  | al (wall) and/or vertical (platform<br>probe to supporting structure (me  | (C) (FA) (FA)   |   |
| Actual measured distance between   | M-10, TSP or Pb sampler inlets = 2<br>een collocated probes (meters)<br>ume inlet and any other high or lov                             | 2 to 4 m?   | Yes No NA   |
| Is probe > 20 m from the neare   | st tree drip line? Yes 🗌 *No  | (answer *'d questions                                     | 3)  |
| *Distance from probe to tree (r<br>*Height of tree (m)                                   | NO.   | Direction from p  |   |
| *Identify obstacle Dista   |   | ection from probe inlet to                                | s above the probe? Yes 🔲 No 🗌                     |

| Parameters   | Monitoring Objective   | 1                                       | Scale         | Site Type   |  |
|--|--|---|---------------|---|--|
| □NA  | □C1/D11  | Пус                                     | -0.0          | SLAMS PM2.5   |  |
| Air flow < 200 L/min   | General/Background   | Micro                                   |               | NCORE   |  |
| ☑ PM2.5  | Highest Concentration  | Midd                                    |               | □SPM  |  |
| PM10   | Population Exposure  | 280000000000000000000000000000000000000 | nborhood      | NONREGULATORY   |  |
| ☐ PM10-2.5<br>☐ PM10 Lead (PB)   | Source Oriented  | Urbai                                   | 7715          | PM2.5 Cont. (TEOM),                                     |  |
| PM2.5 Cont. (TEOM)   | Transport  | Regio                                   | onal          | PM2.5 Spec. (SASS), PM2.5                               |  |
| PM2.5 Cont. (BAM)  | Upwind Background  |   |               | Spec. (URG), PM2.5 Cont.<br>Spec. (aethalometer), PM2.5 |  |
| PM2.5 Spec. (SASS)   | Welfare Related Impacts  |   |               | Cont. Spec. (8400N)                                     |  |
| PM2.5 Spec. (URG) PM2.5 Cont. Spec.  |  |   |               |   |  |
|  | 1 0  | to a much                               | time Da       | 12 D 12   |  |
| Probe inlet height (from ground)   |  |   |               |   |  |
| Distance of inlet from horizontal (wall) and/or vertical (platform or roof) supporting structure > 2 m? Yes 🖂 No 🗌         |  |   |               |   |  |
| Distance between inlets of any low volume monitor and any other low volume monitor at the                                  |  |   |               |   |  |
| site = 1 m or greater?  Distance between all low volume monitor inlets and any Hi-Volume PM-10 or TSP inlet = 2  Yes No NA |  |   |               |   |  |
| m or greater?  | TE DOMESTIC DAY ( DOM |   |               | ICS NO NA NA  |  |
| Are collocated PM2.5 Monitors (Two FRMs, FRM & BAM, FRM & TEOM, BAM & TEOM) Located at Site?                               |  |   | *Yes ⊠ (answ  | rer *'d questions) No 🗌 NA 📗                            |  |
|  |  |   |               | Give actual (meters) 2.2<br>Give actual (meters) 0.17   |  |
| Is an URG 3000 monitor col   | located with a SASS monitor at the sit   | te? "Yes                                | (answer *'d o | uestions) No NA   |  |
| * Distance between collocat  | ed speciation sampler inlets = 1 to 4 n  | 1?                                      | Yes No        | Give actual (meters) 2.7                                |  |
| * Are collocated speciation sampler inlets within 1 m vertically of each other? Yes No Give actual (meters) 0.3            |  |   |               |   |  |
| Is a low-volume PM10 monitor collocated with a PM2.5 monitor at the site to measure PM10-2.5?                              |  |   |               |   |  |
| *Distance between collocated PM10 and PM2.5 inlets for PM10-2.5 samplers = 1 to 4 m? Yes No                                |  |   |               |   |  |
| *Are collocated PM10 and PM2.5 sampler inlets within 1 m vertically of each other?  Yes No                                 |  |   |               |   |  |
| Is probe > 20 m from the nearest tree drip line? Yes ☑ *No ☐ (answer *'d questions)  |  |   |               |   |  |
| *Is probe > 10 m from the nearest tree drip line if tree acts as an obstruction? Yes - *No -                               |  |   |               |   |  |
| *Distance from probe to tree (m) Direction from probe to tree  |  |   |               |   |  |
| *Height of tree (m)  |  |   |               |   |  |
|  |  |   |               |   |  |
| *Identify obstacle Distance from probe inlet (m) Direction from probe inlet to obstacle No No                              |  |   |               |   |  |
| Distance of probe to nearest traffic lane (m) 26 Direction from probe to nearest traffic lane N                            |  |   |               |   |  |
| RECOMMENDATIONS:   | The second secon |   |               |   |  |
| Maintain current site status? Yes      *No (answer *'d questions)  |  |   |               |   |  |
| *2) Change monitoring objective? Yes (enter new objective) No -  |  |   |               |   |  |
| *3) Change scale of representativeness? Yes [ (enter new scale ) No [  |  |   |               |   |  |
| *4) Relocate site? Yes [   |  |   |               |   |  |
| Comments   |  |   |               |   |  |
| Reviewer Robert Jay Pa   | nios   |   | Ť             | DateDecember 8, 2011                                    |  |
| DENO-SISSESSIA .   |  |   | 9,0           |   |  |
| Ambient Monitoring Coord   | linatorD, W, Manning   |   |               | DateJanuary 27, 2012                                    |  |
| Revised 2012-01-30   |  |   |               |   |  |
|  |  |   |               |   |  |

ROCKWELL SITE REVIEW 2011.DOCX Joette Steger

#### Appendix C-2. Scale of Representativeness

Each station in the monitoring network must be described in terms of the physical dimensions of the air parcel nearest the monitoring station throughout which actual pollutant concentrations are reasonably similar. Area dimensions or scales of representativeness used in the network description are:

- a) Microscale defines the concentration in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- b) Middle scale defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.
- c) Neighborhood scale defines concentrations within an extended area of a city that has relatively uniform land use with dimensions ranging from about 0.5 to 4.0 kilometers.
- d) Urban scale defines an overall citywide condition with dimensions on the order of 4 to 50 kilometers.
- e) Regional Scale defines air quality levels over areas having dimensions of 50 to hundreds of kilometers.

Closely associated with the area around the monitoring station where pollutant concentrations are reasonably similar are the basic monitoring exposures of the station.

#### There are six basic exposures:

- a) Sites located to determine the highest concentrations expected to occur in the area covered by the network.
- b) Sites located to determine representative concentrations in areas of high population density.
- c) Sites located to determine the impact on ambient pollution levels of significant sources or source categories.
- d) Sites located to determine general background concentration levels.
- e) Sites located to determine the extent of regional pollutant transport among populated areas.
- f) Sites located to measure air pollution impacts on visibility, vegetation damage, or other welfarebased impacts and in support of secondary standards.

The design intent in siting stations is to correctly match the area dimensions represented by the sample of monitored air with the area dimensions most appropriate for the monitoring objective of the station. The following relationship of the six basic objectives and the scales of representativeness are appropriate when siting monitoring stations:

**Table C7. Site Type Appropriate Siting Scales** 

|  | 7 Por appropriate orange orange                |  |  |
|--|--|--|--|
| 1. Highest concentration                   | Micro, middle, neighborhood (sometimes urban   |  |  |
|  | or regional for secondarily formed pollutants) |  |  |
| 2. Population oriented                     | Neighborhood, urban                            |  |  |
| 3. Source impact                           | Micro, middle, neighborhood                    |  |  |
| 4. General/background & regional transport | Urban, regional                                |  |  |
| 5. Welfare-related impacts                 | Urban, regional                                |  |  |